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THE JOURNAL

of the

Missouri State Medical Association

The Official Organ of the State Association and Component Societies
Issued Monthly Under Direction of the Publication Committee

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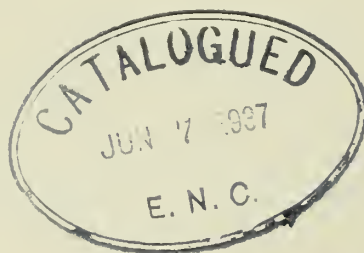
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PUBLICATION COMMITTEE { J. C. B. DAVIS, M.D., Chairman
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HYPERPYREXIA PRODUCED BY THE HOT BATH IN THE TREAT- MENT OF SYPHILIS

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AND

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The employment of fever producing agents has become an established factor in the treatment not only of neurosyphilis but of all types of syphilis. Malaria is supreme in the treatment of paresis and tabes dorsalis. We do not believe that any of the other methods are quite as good. There is some factor in malaria therapy that produces superior clinical results. On the other hand, hyperpyrexia by mechanical means is highly efficient in this type of syphilis. We have already called attention to the employment of malaria in the treatment of other than central nervous system involvement.¹² The experimental work in this field has now become an established fact. The results that were secured by the employment of malaria as a therapeutic agent were little short of miraculous.

It is our idea to reduplicate the same work by the use of the hot bath. The results secured by the different types of short wave radio, infra-red and hot air condition cabinets are well known. But it is not always possible for the patient to have access to this type of machine. We know that heat in the form of hot water has been employed by Schamberg^{32, 34} and others,^{5, 26} both in experimental and clinical syphilis,³⁵ and were fully cognizant of the fact that efficient temperatures could be produced in the human individual by the employment of heat produced by the hot bath. We were enabled to produce very satisfactory rises in temperature in our patients and there follows a detailed clinical discussion of the results.

Our reason for advising the hot bath is that it

can be universally used, even by those who are not close to large cities and medical centers. The bath tub is accessible to practically every one and as we will show later it is desirable that every case of syphilis, no matter what its type, should have the benefit of heat treatment some time during the therapeutic régime.

TECHNIC OF THE HOT BATH

Technic of the hot bath is as follows: The ordinary bathtub is used. The best time for the bath is just before retiring and about two or three hours after eating. Success in the production of temperature lies in the fact that the temperature of the water must be raised to the point set within ten minutes time. The following chart illustrates the technic in a very simple manner:

TECHNIC OF THE HOT BATH. TIME TEN MINUTES

98° F...	102° F., remain in bath 10 min.	WIB*	TT**
100° F...	104° F., remain in bath 10 min.	WIB	TT
100° F...	108° F., remain in bath 10 min.	WIB	TT
100° F...	112° F., remain in bath 10 min.	WIB	TT
100° F...	112° F., remain in bath 15 min.	WIB	TT

*WIB. Wrapped in blankets.

**TT. Take temperature.

Thereafter the baths are to be the same until ten rises of temperature of 104 degrees F. or above are induced. These baths are to be given every other day.

The goal to be reached of course is a temperature of 112 degrees F. in the water. Ten minutes after this temperature has been reached, the patient's temperature should be 104 degrees F. To obtain the temperature of 105 degrees F., we increase the length of time. It is well to put an ice cap on the patient's head if he feels dizzy. His pulse and respiration should be closely watched. If at any time there is evidence of collapse the patient should be removed, wrapped in blankets and given a stimulant such as whiskey or hot coffee.

While taking the bath the patient should have a rubber sheet with a hole in the middle, like a poncho, placed over his head and draped

over the tub. It is not necessary that he should take very much fluid during the bath.

As soon as the desired temperature of 104 or 105 degrees F. has been reached this temperature should be maintained in the bath for not longer than ten to twenty minutes. The patient is then removed, wrapped in blankets and allowed to sweat it out for an hour or so. During that time the patient raises one half to one degree of temperature and quite often will run a little temperature after sweating is over. The optimum temperature of 105 degrees F. should be reached within thirty-five minutes if the bath is properly conducted. The patient does not lose much fluid from his body into the bath and the intimate contact of the low temperature of 112 degrees F. to the skin produces a more rapid rise of temperature than by any other artificial method. Therefore it is not necessary that he should have much fluid during the heat treatment; but after he is wrapped up in the blankets ordinary water may be given to him in any amount that he desires. (Fig. 1.)

CONTRAINDICATIONS

Old age is the greatest contraindication in this type of treatment as it is to any type of hyperpyrexia including malaria; and while we have successfully administered the heat treatment to men 65 years of age yet we always approach the problem with caution and make sure our patient is physically sound.

Hypertension in which the blood pressure is 160 or above is a contraindication to the use of heat.

Cardiovascular diseases of any degree prohibit the use of any type of hyperpyrexia unless it be given with the greatest caution. Even in the robust individual the heart rate is increased considerably by any method of induced heat. It may be that the heart muscle glycogen is somewhat exhausted. Dr. Graham Asher of the City Hospital staff is beginning some studies on this subject.

Of course, history of heat sensitization should always be carefully ascertained in all cases to be given this form of therapy. The history of sun strokes or heat strokes is an absolute contraindication. Diseases such as tuberculosis, Hodgkin's disease, advanced diabetes, etc., should be kept in mind.

Blood chemistry studies upon a large number of these cases show no notable changes. The liver function test* on thirty cases was entirely within normal ranges. The patients do not become anemic nor as a rule lose much weight under this treatment.

We believe the defense mechanism of the body that is concerned with syphilis is a trigger mechanism and begins to be set into motion at its best rate after a temperature of 104 degrees F. has been reached. We consider a temperature of 105 and 106 degrees F. the best and we do not think it necessary to subject our patients to hours of heat that produce high temperatures. The long continued application of heat in the cabinets exhaust the patients very much and it is necessary to use immense quantities of water in order to keep up the body weight and to prevent a concentration of salt in their blood. We feel that there is no particular advantage in thus prolonging the agony of the patient. We feel sure by clinical results that the short and quick rise of temperature in the application of heat, at least in these cases, is most advantageous to the patient instead of the long-drawn-out period in the cabinet. Some years ago Jadassohn⁴⁰ carried out a series of experiments to show that the skin is an inherent part of the defense mechanism of the body. He irritated the skin of a syphilitic with different chemicals and believed that under this régime the eruptions of syphilis disappeared with greater rapidity than they would otherwise. The hot bath produces a temporary intense irritation of the skin. When these patients emerge from the bath their skin is red and edematous and we have noted that the skin lesions on the body that are in direct contact with the water disappear more rapidly than

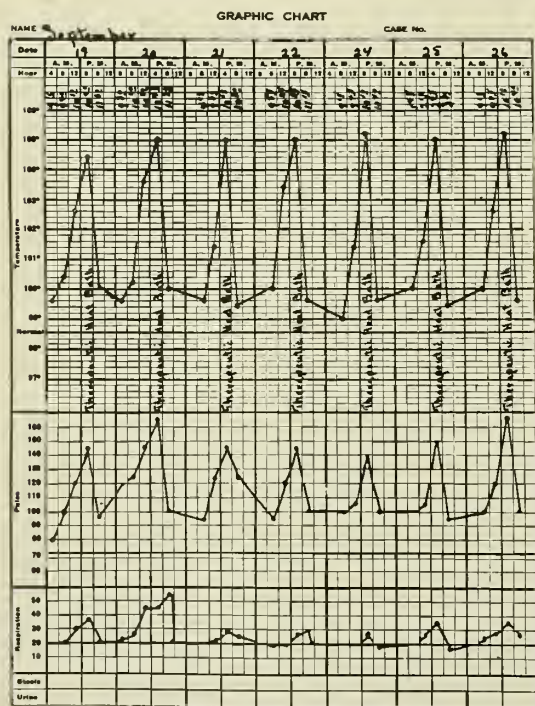


Fig. 1. Showing rapidity with which peak temperatures are reached after the beginning of the bath.

*Galactose was used for the liver function test.

the lesions on the face which do not come in contact with this fluid.

The use of hyperpyrexia³² in the treatment of experimental syphilis in rabbits was used to prevent the infection of the rabbit but it only delayed the appearance of the primary lesion. The work done by Schamberg is a good example of this. The more recent work of Bessemans³ has shown that after a few temperatures of 105 degree F. or above the spirochaeta pallida could not be demonstrated in the human chancre by the use of the dark field illuminator.

But the inevitable conclusion was the same; i. e., that the organisms of syphilis are not killed but only slowed up in their action. We believe that the virility of the organism of syphilis is reduced when submitted to temperatures of 105 degrees F. or above for a certain length of time thus making them more amenable to the defense mechanism of the body. Just how this is brought about is not certain; but it may be that heat dissolves the waxy capsules that envelop so many of these organisms thus allowing the immunological reaction to take place which would be much slower were the heat not used.

Thus we think when the syphilitic organism is subjected to heat that simultaneously with the raising of the immune forces of the body its virility and susceptibility to attack by the immune forces is lowered. It is highly improbable that the spirochaeta pallida dies a thermal death as has been claimed in many circles. If this were true the cure of syphilis would be a very simple matter and it would be only a short time until the organism of syphilis would be entirely eradicated from the face of the earth.

In spite of experimental work, which apparently shows that the organism of syphilis is destroyed in vitro by heat and that the organism disappears from the primary lesion, it is admitted by all those who have done experimental work that this organism cannot be eradicated by heat alone. Experimental work conducted by us shows that even though a temperature of 106 degrees F. has been maintained in the body for hours the organism is not killed because the original signs and symptoms will almost invariably return unless subsequent treatment is used. Furthermore, it is agreed by all that the blood serology cannot be converted from positive to negative by the use of heat, malaria, or any other fever producing agent.

It is evident that hyperpyrexia is of little value in early syphilis, with the exception of two types, viz., the so-called seronegative early syphilis and the malignant type. The reason that hyperpyrexia is not of much value in these early stages is because the great majority of those who have this disease in its early stage

are already receiving the benefits of a high degree of stimulation of the defense mechanism of the body. The reticuloendothelial system is working at almost top speed. The reduction of the virility of the organism is taking place and while these two forces may be raised and lowered by the application of specific stimulation yet that stimulation is not enough to cause either the complete disappearance of the lesions or the conversion of the positive Wassermann to negative. Engman¹⁶ treated a number of cases of secondary syphilis with an injection of typhoid bacterin without any permanent results. He caused the secondary lesions to be less pronounced and reduced the four plus Wassermann to a three plus in certain instances.

Schamberg and Tsieng attempted to treat cases of secondary syphilis by the hot bath but gave it up because their results were not worth the effort.³⁵ Hyperpyrexia should be confined to the treatment of those syphilitics who fall into the classification of late syphilis, for the chief reason that it is during this stage that the defense mechanism of the body has slowed up to such an extent that it is only active enough to keep propagation of the spirochaeta pallida at a certain low level. It is well known that in seronegative early cases of syphilis one must be very guarded in the type of treatment used. The disease has not permeated the individual for a sufficient length of time for the stimulation of the defense mechanism of the body nor has the virility of the organism been reduced. Arsenicals given at this time for some strange reason seem to put the defense mechanism out of commission and seem to increase the virility of the specific organism. If this treatment is not continued energetically over a period of at least two years one may be confronted with a recurrence of syphilis that is impossible to combat with the ordinary syphilitic remedies. It is here that heat is a treatment par excellence, for it seems by this method we are enabled to stimulate the reticuloendothelial system and those little understood parts of the defense mechanism of the body to such an extent that the human organism can again successfully overcome the organism of syphilis with the complete disappearance of the lesions. Subsequent treatment by the arsenicals, mercury and bismuth, is then quite successful. Why this should be no one knows and we only offer this idea as a possible solution. It is known that the reticuloendothelial system picks up certain heavy metals and it may be that the molecules in which these metals occur are too large for this system to absorb before the administration of heat. This agent may break up the coarse metallic combinations into a finer division so that the reticuloendothelial system

can absorb it after the administration of heat. The following case illustrates the efficiency of heat in the seronegative recurrent syphilis due to insufficient treatment.

REPORT OF CASE

Case 1. W. D., male, white, divorced, aged 27. This patient was admitted to the Isolation Hospital on January 15, 1934, with penile lesion (dark field positive) and ecthymatous secondaries. Blood Wassermann strongly positive. He was given three neosalvarsans and three bismuth injections and dismissed on January 26.

For the next six months he took no treatment. On June 1, 1934, he reentered Isolation Hospital with a mucocutaneous relapse; dark field positive; blood and spinal fluid negative (negative phase syphilis). He was given three neosalvarsans and four bismuth and was released on June 16, 1934. On June 25, 1934, blood Wassermann negative, Kahn negative. He proceeded to finish his course with eight more neosalvarsans and fourteen bismuths and then disappeared for six weeks.

On October 12, 1934, he came into the clinic with severe jaundice, clay colored stools, fever, anemia, and semiprostration. He was admitted to the hospital. Diagnosis of hepato-recurrence was made. The blood Wassermann and Kahn were both negative.

On October 27, 1934, hot baths were instituted. Temperatures of 102 degrees F. to 104.6 degrees F., were reached and he took seventeen of these baths. He made an excellent clinical improvement and on November 23, 1934, his blood Wassermann was four plus, Kahn four plus.

He then took an eight weeks' course of sodium iodide and bismuth and his blood was negative on February 8, 1935.

Here is illustrated the provocative effect of pyretotherapy on negative phase syphilis. Incidentally, this is one of the cases where the general clinical improvement was by far the most striking result obtained.

We do not believe that there is any such thing as a malignant syphilis. Almost without exception the cases who have this so-called type of syphilis have contracted the disease from an individual who has a very ordinary type. We believe that it is a matter of lack of the defense mechanism upon the part of the individual in which the titre of his immunological forces are so low that no resistance is put up against the infection. In support of this theory we offer the following case of "malignant" cutaneous syphilis.

REPORT OF CASE

M. B., white male, aged 29, married. Entered Isolation Hospital May 9, 1934, with a sore throat and several destructive ulcerative lesions on his extremities. (Fig. 2.) Diagnosis: Late secondary syphilis, ulcerative type. He felt generally weak and debilitated; appetite was poor and he had suffered considerable loss of weight. Neurological examination negative. Patient denies primary or secondary manifestations. Blood Wassermann was four plus, Kahn plus.

He was given a course of hot baths, fifteen in all, temperatures 103 F. to 105 F. A remarkable disappear-

ance of the lesions ensued. He left the hospital on June 1, 1934, with all the ulcers epithelialized and feeling better generally. He has continued to improve; he is working hard, has gained weight and looks fine.

That hyperpyrexia enhances subsequent treatment is now an assured fact. When heat treatment is used in the form of the hot baths or any other various electrical machines, sodium iodide and bismuth can be given between courses and even salvarsan may be used. This procedure differs decidedly from the conduct of the cases inoculated with malaria. Subsequent antisyphilitic treatment if used too soon may precipitate a crisis or may cause an activation of lesions that are already active enough.

In our experimental work with syphilitics and congenital syphilitic children we made the observation that active treatment should not be used until three months after the therapeutic malaria had been terminated.

This is not true in heat treatments. One needs only to wait two or three weeks before instituting such treatment. Lesions that will not heal under the ordinary antisyphilitic treatment, such as salvarsan, bismuth and mercury, will often heal when hyperpyrexia is used prop-



Fig. 2. So-called "malignant" syphilis. The involution illustrated occurred after fifteen baths.

erly. Yet a follow-up course of treatment with the heavy metals must be used after thermal therapy. If this is not done the original lesion may recur, whereupon the administration of the same type of treatment that has been used all along will clear up the lesions. This phenomenon has been noticed not once but a number of times so that we feel that this principle is at least beginning to have some phase of permanency.

If this observation is true it is of great importance for it changes the type of subsequent treatment altogether. One may say with assurance that the arsphenamines together with the heavy metals should be stressed in the treatment of early syphilis and that the heavy metals to the exclusion of the arsphenamines should be stressed in late syphilis. Many cases of neurosyphilis have eye complications which prohibit the use of tryparsamide, acetarsone, and other pentavalent arsenicals. We have found sodium iodide intravenously and bismuth intramuscularly to be very efficient in the follow-up treatment in our cases of neurosyphilis. A sufficient length of time has not elapsed for us to state definitely that this is the case but our work so far has led us to regard this state of affairs as very likely.

We present herewith a series of representative case reports, grouped according to the type of syphilis involved. It must be admitted that the cases here listed are perhaps the optimal of the results obtained in one sense; on the other hand, it must be remembered that for such a report as this it is necessary to select such cases as show demonstrable, perhaps even visible, results on paper; and that such factors as, for instance, clinical impressions of marked improvement in appearance, personality and morale can hardly be included. Therefore these cases need not be considered as typifying the most unusual nor even the best features of the results achievable. Moreover, it is to be noted that the cases reported represent a respectable majority of all the cases run in the respective groups.

I. *Interstitial Keratitis*.—We have treated 9 cases in all of interstitial keratitis by hot baths. All these have been drawn either from the service of one of the authors (A. N. L.) or of Dr. A. W. McAlester III, at Children's Mercy or General Hospitals, respectively.

The effect of heat upon interstitial keratitis is one of the most remarkable phenomena observed in this series. In our series of cases the acute symptoms of this disease disappear in their entirety in every case in just as remarkable a manner as they disappear when malaria is used. It does not seem that the institution of heavy metal treatment following heat treat-

ment precipitates the original condition as it does when used after therapeutic malaria. Patients become accustomed to the high temperatures so that if it becomes necessary to institute heat therapy again they can be started off with a temperature of 100 degrees F. and raised rapidly to 112 degrees F. in the water at the first bath and thus secure a temperature of 104 degrees or 105 degrees F. the first time. We no longer have the fear of interstitial keratitis that we once had. We know by this simple procedure of heat treatment that we can rapidly clear up the majority of them, institute heavy metal treatment, especially the bismuths and iodides and secure a clinical cure.

REPORT OF CASES

Case 1. D. McC., white girl, aged 20. This⁴⁴ very striking case was reported by us in May, 1934. We have now observed this girl for thirteen months more; she has been on relatively mild chemotherapy (iodides, mercury and bismuth in short courses). She has maintained an excellent clinical condition with no hint of recurrence and no more pyretotherapy.

Case 2. C. S., white, male, single, aged 19. Well developed athletic young man who had no suspicion of any constitutional disease until he suddenly developed progressive blindness in September, 1934. He was seen in the outpatient department on September 21, 1934, and the following report was made by the ophthalmologist:

"OD shows slight infiltration of the cornea. OS shows marked infiltration of the cornea, with a few gray nodules; small salmon patch at the upper limbus. Both pupils dilated with atropine. Blood Wassermann 4 plus, Kahn 4 plus."

On September 27, 1934, he was admitted for hot baths. His temperature responses were rather poor (average 102 F.) so it was necessary to give him a rather prolonged course. He was given 45 baths up to November 15; a 12-day rest period; then 15 more baths from November 27 to December 11, 1934. There was markedly rapid improvement with this last course.

Reports:

"December 11, 1934. Eyes immensely improved. Both corneas are practically clear. Dismissed from hospital."

"January 10, 1935. Improvement continues."

At this time chemical therapy was instituted and he is doing very nicely to date.

Case 3. This case is of extreme interest because the patient developed interstitial keratitis after ten years' treatment with an evident clinical cure.

D. J., female, aged 11 years, born in 1924.

Complaint: Left eye red and inflamed for ten days.

Family History: This patient is an only child. The father and mother are taking treatments for syphilis at the present time. The mother's blood is three plus positive and her cerebrospinal fluid is negative.

Physical Examination: The child is fat and well nourished. The skin clear; eyes, nose and throat show no abnormalities. The chest is negative. The liver and spleen are one finger's breadth below the costal margin. The skeletal system shows no abnormalities. Epitrochlear glands are palpable. Wassermann reaction is four plus positive.

Treatment: From September 19, 1924, until September 23, 1927, the child was under continuous observation and treatment. She received forty-one doses

of neosalvarsan intravenously and fifty intramuscular doses of one fourth of a grain of bichloride of mercury. She was observed from 1927 to 1934, during which time she showed no evidence of syphilis and was a strong and healthy girl. The result of the examination of the cerebrospinal fluid in 1934 was negative. Her Wassermann and Kline reactions had been negative for seven years. In a check-up of her physical condition she appeared to be perfectly normal. The Mantoux test was negative for tuberculosis; likewise the roentgen ray of chest showed no evidence of tuberculosis. The cardiovascular system was also normal. On October 27, 1934, the patient developed a fairly moderate degree of interstitial keratitis in the left eye. She was given fourteen hot baths in which the satisfactory temperature of 104 degrees F. was secured with complete relief of symptoms. Within three weeks after she had been sent home from the hospital she developed a marked interstitial keratitis in the right eye. She is still under treatment for this condition although it has almost completely disappeared. During this course of treatment her vision was OD 20/32; OS 20/24.

This case represents the persistence with which interstitial keratitis will make its appearance in a patient who is apparently cured of syphilis even though a complete and critical examination shows no evidence of this disease; and further shows the efficiency of heat treatment in clearing up the recurrences.

The remaining cases of interstitial keratitis were in no way remarkable. The acute symptoms cleared up in a remarkably short time. The ground glass appearance of the corneas rapidly cleared up under this form of therapy and the vessels in the cornea became almost invisible.

II. OTHER EYE CONDITIONS

Case 1. F. P., white, male, married, aged 39. He was first seen on August 11, 1934. He had been taking treatment elsewhere irregularly for 12 years. In the last few months he had developed marked mental trends and his general condition physically was becoming poorer.

Examination revealed a fairly well nourished white male whose cerebration was halting and considerably below par mentally. Pupils fixed, unequal. Blood Wassermann 4 plus; Kahn 4 plus; spinal fluid Wassermann 4 plus; Kahn 4 plus, Lange 555555432. Bilateral pallor of the nerve heads well advanced.

He was inoculated with malaria and admitted to the hospital. On September 23, 1934, he was dismissed from the hospital having had seven severe chills, temperatures 104 to 106 F. In the next two months he made a marked improvement in his health and physical condition but no mental advance was observed. He had in the meanwhile been started on iodide and bismuth therapy and seemed to be progressing fairly well.

On January 17, 1935, the ophthalmologist reported a rapid progression of the optic atrophy with alarming contraction of the visual fields, particularly in the right eye; and the patient was sent in for hot baths.

A course of 26 hot baths was given between January 18 and February 15, 1935. Temperatures of 102 F. to 104 F. were obtained. A marked improvement in his vision resulted and a very definite increase in the visual fields.

Figure 3 represents the three sets of fields: A before his malaria; B at the time the contraction became alarming in January; C just after his release from the hot bath course.

The results here achieved were most gratifying, for optic atrophy with contraction of the visual fields is a process notoriously difficult to arrest.

Case 2. C. M., white, male, married, aged 60. Patient first presented himself to outpatient department on October 16, 1934, complaining of blurred vision in both eyes, particularly the right. Onset, sudden, 3 weeks ago. Examination: "OD vision 3/200. Disk slightly pale. Chorioretinal degeneration, temporal side of disk with some irregular pigmentation. Pigmentary changes around macula with small hole up and out from fovea. OS vision 20/100. Macular area shows marked degeneration with large hole with deeply pigmented margins above fovea. Apparently has had chorioretinitis juxtapapillaris in OD involving papillomacular bundle. Blood Wassermann 4 plus; Kahn plus. Diagnosis: syphilitic chorioretinitis. Recommend heat therapy."

Patient was admitted to hospital on October 15, 1934, and hot baths were instituted. Was given 30 daily baths, temperatures 102 F. to 103 F. Successive ophthalmoscopic examinations revealed steady progress. Examination on October 30, 1934:

"OD vision 20/50; OS vision 20/30. There is a marked improvement over vision on admission. Both disks are essentially normal. The areas of degeneration and of diffuse pigmentary changes previously described in OD are still present but to a remarkable diminished extent in comparison to the previous report."

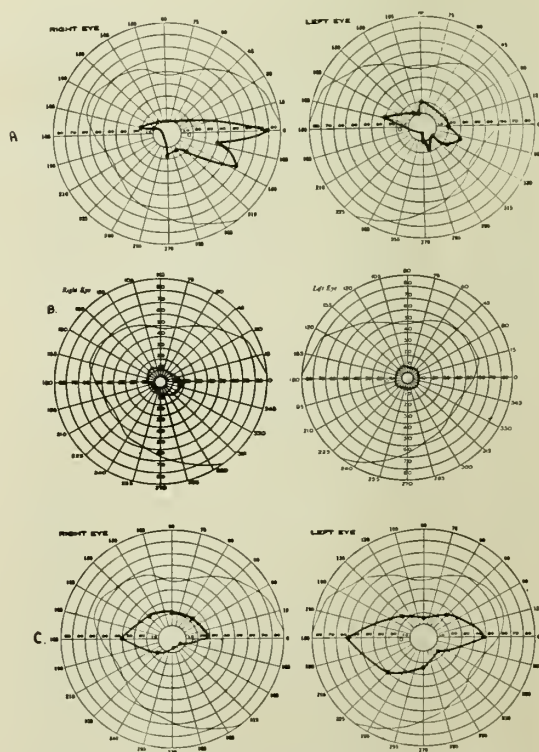


Fig. 3. Primary optic atrophy. A. Fields before the malaria was given. The fields rapidly contracted down to "gun-barrel" type as shown in B. C. Marked restoration after twenty-six baths.

Along with his improvement in vision the patient's general condition became markedly improved. He was dismissed on November 15, 1934, for further observation through outpatient department but has not been seen since.

Case 3. A male, aged 12 years; entered the hospital because he complained of not seeing well. The ophthalmologist reported the following: OD 20/13, OS 20/96. Both disks elevated 2D. Veins tortuous and disks blurred with slight congestion. The edema extends well into the retinae and the left macula very blurred. The Wassermann and spinal fluid were negative. The Mantoux test was negative. The roentgen ray of the chest failed to reveal any tuberculosis either juvenile or adult type.

Treatment: He was given twenty doses of sodium iodide intravenously and twenty intramuscular injections of bismuth in three months but without benefit. He entered the hospital, not being able to read the ordinary headlines in the newspaper, on January 15, 1935, and dismissed on February 3, 1935. During this time he received ten hot baths, five 105 F. or above and two 106 F. His vision was greatly improved. The report of the ophthalmologist was OD 20/19, OS 20/64.

The vision has kept on improving until the present time. In April, 1935, it was OD 20/13, OS 20/49. He reads the finest print with ease.

III. BONE AND JOINT DISEASE

A number of cases of bone pathology of malignant types have been treated with malarial pyretotherapy by one of us (C. C. D.) and reported in a previous communication.^{12, 13} Since the present study has been run few such cases have come in for treatment. However, we have given hot baths to several patients with syphilitic bone diseases with definite benefit. We have thus far been unable to demonstrate any permanent benefit in long standing Charcot's disease. The following is an interesting case of Clutton's joints:

REPORT OF CASE

Case 1. J. D., male, aged 10, entered the hospital in January, 1935, because of rheumatism in his knees. This rheumatism had become apparent about six weeks previously. He had great pain, shortly followed by swelling.

The examination shows both knees swollen and filled with fluid. Wassermann and Kline four plus positive.

Diagnosis: Clutton's joints, or bilateral hydrops of the knees.

Treatment: He was given a course of heat treatments, 14 rises in temperature, the last 8 being above 105 F. with complete reduction in the size of the joints, disappearance of the fluid and ability to walk with ease.

One month after this the patient developed interstitial keratitis in the right eye. A short course of heat treatment promptly cleared up this condition.

IV. DEAFNESS

Late syphilitic involvement of the eighth nerve is usually a most unfortunate affair in acquired as well as in congenital syphilis. Whether the process once started can be influenced by therapy is debatable. We have re-

cently instituted routine checking of auditory acuity by means of audiometer readings but the amount of material is as yet inconclusive.

REPORT OF CASES

Case 1. This man's history is given in detail under cutaneous lesions (J. C.). The point of interest here is that, on completion of his hot baths, his impairment of hearing was definitely worse than at the onset. We interpret this as due to the probability that there must have been a moderate degree of involvement already in the nerve; the fever therapy hastened the healing process with premature and excessive laying down of scar tissue; the resulting fibrosis caused a diminution of the hearing; an example of the so-called "therapeutic paradox."

Case 2. This case represents the efficiency of heat treatment in syphilitic deafness due to infiltration of the auditory nerves. E. W., male, white, aged 12, entered hospital June 30, 1934. Complaint: Inability to hear.

Present History: This deafness has been gradually appearing for the last two years and has become so bad that in the last three months the child cannot even understand the shouting voice.

Family History: The mother was not seen. The father had a typical case of tabes dorsalis, as indicated by the Argyll Robertson pupils which are unequal, irregular and do not react to distance. The reflexes in the lower extremities are exaggerated and there is no Rhombargism. The physical examination is negative. The Wassermann and Kline on the father were four plus positive.

Physical Examination of the Child: Ear examination shows that hearing for high notes is gone in the left ear and reduced in the right. Hearing for the whispered voice is gone. The nasal space is normal, the ear drums in both ears are normal. Tonsils and adenoids are somewhat diseased and operation was advised. Otherwise the boy had no indication of any kind. Pupils react to light and accommodation. Nose and throat negative except large tonsils. Teeth normal, no adenopathy. Skin clear. Chest and abdomen negative. The skeletal system shows no evidence of syphilis. The blood and spinal fluid are four plus positive. The other findings of the spinal fluid are negative.

Treatment: The patient was given a course of heat baths, fourteen in all, with a maximum temperature of 105.7 F. He began to regain his hearing at the end of these baths which started September 7, 1934, and ended, October 5, 1934. The hearing was practically normal, the high tones being reduced only slightly.

At the end of this time he was given twenty doses of bismuth intramuscularly and twenty doses of sodium iodide intravenously. On January 11, 1935, the ophthalmologist made the following note:

"The iris crypt of the right eye is covered in two thirds of the periphery. The left eye normal. Pupils regular, react well to light and accommodation. Both disks are slightly blurry with an increase of pigment in the margin. The vessels of both retinae are quite blurred with mottling of the fundi in the periphery. Vision in both eyes 20/13."

He was then given ten doses of 0.25 of a gram of neosalvarsan. At the end of this time the blood Wassermann was four plus positive. The hemoglobin, red and white count and blood chemistry findings are all well within normal limits.

As far as can be determined at the present time the boy's hearing is 90 per cent normal.

V. CUTANEOUS SYPHILIDES

This is a group of cases in which of course it is the easiest and most certain to judge therapeutic results. For this reason, and also because there has been but little work reported in the literature with pyretotherapy of any form on this type of syphilis, we present a rather larger number of these cases for consideration. Several of these, incidentally, have other aspects, which are dealt with under their respective headings.

Group A. Two cases of mucocutaneous relapse.

REPORT OF CASES

Case 1. P. H., white, male, single, aged 33. History of primary lesion in May, 1934. Ten injections of neoarsphenamine were given intravenously at that time. The lesions promptly healed. No further treatment.

First seen in outpatient clinic on September 12, 1934. Had florid, maculopapular secondaries with mucous patches in pharynx. Blood Wassermann four plus, Kahn plus. Diagnosis, mucocutaneous relapse. (Fig. 4.)

He was admitted for hot baths at once. A series of fifteen was given, with excellent temperature responses, 104 F. to 106 F. He was released on September 30, 1934, with his lesions virtually all cleared up. Has not been seen since.

Case 2. W. D., aged 27. This case was cited above as an illustration of "malignant" cutaneous syphilis.

GROUP B. TWO CASES OF CORYMBOSE SYPHILIDES

This type of syphilide, it must be remembered, is notoriously the most difficult to clear up with ordinary therapy.

REPORT OF CASES

Case 1. H. B., white, male, single, aged 36. First seen in outpatient clinic in January, 1935. History of having had a chancre eight years ago. He took twenty-five intravenous treatments (probably neosalvarsan) About two months prior to his entrance to the clinic he began to develop a skin eruption; this has become progressively worse.

Examination reveals a well nourished white male. Neurologically negative. Numerous large, grouped plaques of corymbiform nodular lesions are present on his body; the trunk, the limbs and the face are all af-



Fig. 4. Muco-cutaneous relapse. Complete clearance of the lesions occurred after fifteen hot baths.



Fig. 5. Multiple corymbiform syphilides. Definite degree of involution after fifteen baths. Complete clearance of the lesions occurred after a short follow-up of iodides and bismuth.

ected. (Fig. 5.) Blood Wassermann four plus, Kahn plus. Spinal fluid negative.

He was admitted to the hospital for hot baths on January 20, 1935, and therapy was at once instituted. After about ten baths it was noted that the lesions on his body (where the water came into contact) were involuting nicely, whereas those on his face were not affected; in fact, there even appeared one new one on his scalp. Baths were continued and the processes described continued. During this time he developed an aphonia which the ear, nose and throat department diagnosed as being due to an ulceration on one vocal cord (gumma?). After 25 baths, iodides and bismuth were instituted; the aphonia and the skin lesions promptly cleared up in less than three weeks.

Here we again call attention to the important principle that heat therapy finds its greatest usefulness as an adjuvant, and preparatory to chemotherapy.

Case 2. M. B., white, male, married, aged 29. This case was reported in our previous communication.¹⁴ In his subsequent observation (now of one year's duration) he has been entirely clear, both clinically and serologically.

Group C. Two cases of annular papular syphilides.

REPORT OF CASES

Case 1. H. C., white, male, single, aged 26. History of a penile lesion on August 21, 1933. Blood was positive and he was given 18 treatments intravenously with an equal number intramuscularly.

On August 24, 1934, he presented himself at the outpatient department. Examination revealed an annular papular syphilide on the penis and another one on the scrotum. A painful lump was present on the left tibia, which the roentgen ray reported luetic periostitis. At this time his blood Wassermann and Kahn were both negative. Particular attention is called to this fact.

He was admitted to the hospital and given fifteen hot baths with good temperature responses. After his sixth bath his blood Wassermann was 4 plus, Kahn plus. It persisted thus throughout the course of his baths and one week after cessation it was still Wassermann 4 plus, Kahn plus.

His lesions healed up promptly and entirely; they were all gone by the thirteenth bath. The soreness in his ankle disappeared and he was released from the hospital on September 15, 1934.



Fig. 6. Late secondary, annular papular syphilide, showing the clearance after one course of hot baths.

After the first course of chemotherapy (10 sodium iodide with 20 bismuth) his Wassermann and Kahn both reversed to negative and he has remained so since. His general condition is excellent.

This case we consider an example of so-called "negative phase" syphilis. It is generally agreed that a late secondary syphilide developing one year after infection with a negative serology indicates a grave condition as regards the patient's lack of resistance. It seems logical to assume that an agent which brings about a positive reaction must do so by way of specific stimulation of the resistance apparatus. Certainly this is a striking reversal of serology. This subject will be mentioned in more detail later.

Case 2. B. H., white, male, married, aged 44. History of "chancre and bubo" in 1909. He took medicine by mouth for over a year; his lesion cleared up, he never developed secondaries and he has had no subsequent treatment.

Came to the outpatient clinic on February 20, 1935, with two large, annular, papular lesions; one on the dorsum of the left hand, the other on the forearm. The latter measured 6 by 3.5 cm. Duration of these lesions was 8 months. His blood Wassermann was (and still is) consistently negative. A diagnosis of annular papular syphilides with negative phase serology was made. (Fig. 6.)

Patient was admitted to hospital on March 4, 1935. He was given 15 hot baths, temperature 103 F. to 104 F. The lesions cleared up practically in toto and he was released on March 18, 1935, for further treatment through the clinic.

Although there has never been any serological confirmation of the presence of syphilis this patient was seen by a group of dermatologists at the weekly Diagnostic Clinic and the diagnosis was unanimously agreed upon.

GROUP D. TERTIARY SKIN LESIONS

Case 1. J. C., white, male, aged 41, married. Sent in to the clinic because of an ulcer on his arm.

Patient denies primary or secondary manifestations of syphilis. Had gonorrhea 10 years ago. Fifteen

years ago he burned the entire dorsum of his left forearm with acid followed by scar formation. In August, 1934, a destructive ulceration developed in the midst of this scar and has slowly grown progressively larger. Shortly thereafter grouped nodular lesions appeared on his forehead. (Fig. 7.) Two biopsies taken from the edge of the ulcer failed to reveal any malignant changes. Blood Wassermann negative, Kahn negative. Diagnosis: Multiple tertiary syphilodermata.

On February 7, 1935, he was admitted to the hospital for heat treatment; fifteen hot baths were given. The ulcer involuted very distinctly. The nodular lesions on the forehead at first became much accentuated, then proceeded to involute completely. (Fig. 7.) Serology of the blood and spinal fluid was negative all the way through this course. This patient also developed an accentuation of his deafness (discussed above, group III, case 1).

Case 2. E. B., male, white, divorced, aged 32. History of chancre in June, 1933. Took a year of treatment at a clinic, consisting of neosalvarsan and heavy metals in alternating, short, intermittent courses.

On December 17, 1934, he presented himself at the Isolation Hospital with serpiginous ulcerous (gummatous) lesion of the skin of the scrotum of 3 weeks' duration. Dark fields from lesion and from regional lymph nodes negative. Blood Wassermann 4 plus, Kahn plus. Spinal fluid negative.

Admitted to the hospital on December 17 and 15 hot baths were given; temperatures of 102 F. to 103 F. Remarkably prompt healing of the lesion followed. He was dismissed on January 11, 1935, and returned to his outlying clinic for further treatment.

Case 3. M. C., white, female, divorced, aged 50. This patient presented herself at the Isolation Hospital on October 4, 1934, with enormous, crusted, destructive, gummatous lesions of the face, the trunk and particularly of the lower extremities. Duration indeterminate. (Patient is an old alcoholic and it is impossible to obtain satisfactory history or cooperation from her.) Her general condition was very poor; she was debilitated, weak, listless and dirty. She was admitted to the hospital and pelvic examination was made. The labia had a remarkable "lace-work" appearance due to the presence of numerous gummatous through-and-through perforations. The internal pelvic organs were fixed and excruciatingly tender to manipulation; cervix fixed and quite firm. There was very little bleeding.

Blood and spinal fluid reactions negative; patient had



Fig. 7. Multiple, tertiary syphilodermata with large gummatous ulceration in site of a burn scar. Marked involution of lesions after one course of baths.

a series of positive Wassermans in the clinic some years ago. Diagnosis: Multiple gummata of the skin, face and labia. Probably frozen pelvis due to malignancy. Chronic alcoholism. Cachexia. Avitaminosis.

Repeated biopsies from vaginal and cervical masses failed to demonstrate any malignant tissue.

From November 20 to December 5, 1934, she was given 15 hot baths, temperatures 102 F. to 103 F. She complained bitterly of these but her tolerance seemed satisfactory so they were continued up to 15. She was dismissed from the hospital on December 9, 1934, at which time the following note was made by one of us (M. P.):

"The skin lesions have involuted markedly, and while not all gone, are either healing nicely or healed. Her general physical condition is vastly improved.

"There has not been a great deal of change in the pelvis. I now think more strongly that pelvic condition is entirely carcinomatous, with no luetic involvement."

Sixty days later this patient presented herself at the clinic. Pelvic examination then revealed a remarkable diminution in the extent of the masses and much increase in mobility of the pelvic structures. She had been taking mercury and potassium iodide by mouth in the interim. Since that visit she has not reappeared nor been seen by us. In view of the marked pelvic improvement and the negative biopsies a diagnosis of diffuse syphilitic infiltration would seem more likely than carcinoma.

Case 4. L. V. C., white, female, aged 31, married. Patient came to outpatient clinic on June 18, 1934, with many large gummata of the skin covering her extremities. Denies chancre or secondaries. History of three miscarriages. No previous antiluetic therapy. Blood Wassermann negative, Kahn negative.

She was admitted to the hospital at once. A course of 15 hot baths was given; temperatures 102.5 F. to 103.5 F. Marked involution of the lesions followed and on July 5, 1934, her blood Wassermann was 4 plus and Kahn was 4 plus. Again the provocative effect of heat in "malignant" syphilis is illustrated. She has cleared up entirely and gained 26 pounds three months after her baths. She is now unfortunately pregnant again but her general health is excellent.

VI. LIVER INVOLVEMENT

Case 1. W. D., male, white. This case was presented above as an illustration of recurrent seronegative syphilis due to insufficient treatment.

Case 2. M. S., white, female, single, aged 14. This child's mother has been under treatment at this hospital for lues for a long time. Curiously enough she has been diagnosed syphilitic cirrhosis of the liver. This is interesting in view of the fact that the child's pathology is also splenohepatic. The patient has previously been in the hospital several times for minor complaints. Congenital syphilis was diagnosed in 1926; treatment was advised but very little was taken. This last time patient entered the hospital on November 28, 1934, complaining of abdominal enlargement and pain; duration 2 to 3 years; slowly progressive.

Physical examination revealed an underdeveloped and undernourished girl of 14; pupillary stigmata of congenital syphilis (Lemoine's iris); prominent frontal bones. Marked degree of ascites. Liver and spleen enormously enlarged, the former extending well below the umbilicus. Blood Wassermann 4 plus, Kahn plus. No aberrance in blood picture except for a mild leukopenia.

After considerable study we made a diagnosis of syphilitic hepatosplenic disease. A course of hot baths

was started on December 30, 1934. Temperatures varied from 102 F. to 105.6 F. Along with this were given small doses of bismuth intramuscularly, 0.5 cc. once a week. Twenty-five baths were given in all.

A most remarkable recession in the size of both organs occurred but particularly in that of the liver which diminished to where it was down only about 3 fingers, well above the umbilicus. The ascites disappeared entirely. She was dismissed on January 20, 1935. She is now on follow-up chemotherapy in the clinic and doing well.

VII. PROVOCATIVE WASSERMANN EFFECT

We have made reference several times to the provocative effect upon the blood serology produced by heat therapy and to the probable significance which this phenomenon represents as regards the immune mechanism. In our series of cases we had noted this only casually and incidentally until very recently; therefore we have few cases where we have given hot baths with the express purpose of inducing a positive Wassermann. However, in addition to the cases already cited we have thus far two paretics, two tabetics, one cutaneous and two latent cases of syphilis where this procedure has been successfully applied. We have not as yet been able to provoke a positive spinal fluid; this procedure, of course, does not lend itself well to such attempts.

VIII. WASSERMANN-FAST CASES

Our results in these cases have on the whole been disappointing. In only two cases (a paretic and a taboparetic) were we able to obtain a reversal of serology by heat alone; both of these were spinal fluid serologies. We have had a few cases where we believe the follow-up chemotherapy has reversed a Wassermann previously resistant to the same identical chemicals.

IX. HOT BATHS FOLLOWING MALARIA

This is the type of case in which we feel hot baths are of exceptionally great benefit. For some reason the clinical results achieved by hot baths on the patient who has previously had malaria have always impressed us as being swifter and more striking than in the ordinary cases; one feels that results are achieved with much more ease in these cases. Perhaps the immune mechanism having been stimulated by malaria is "sensitized" so that subsequent hot baths accomplish their work with less effort. This group comprises a large number of patients. We quote but three.

Case 1. C. T., white, male, aged 39, married. Patient had a chancre in 1921. He was given fifty injections intravenously (presumably neosalvarsan) and fifty intramuscularly in the next one and one half years. He took no further treatment until 1933 when he had a "nervous breakdown" and his mental and personality changes were quite marked, according to his family. A lumbar puncture was done. Positive findings were reported and he was given malaria. He had ten chills, but no particular benefits were noticed.

Patient entered the General Hospital on July 1, 1934. At that time he was having definite spells of lapse of memory, mental aberration and personality changes. Marked blurring of speech. Laboratory findings: Blood Wassermann 4 plus, Kahn plus. Spinal fluid Wassermann 4 plus, Kahn plus; colloidal gold 555554300. He was given a course of 15 hot baths, temperatures 103 F. to 104.2 F.

At this time (August 7, 1934) a clinical note was made on the chart that progress was unsatisfactory and

that the prognosis appeared very poor. He was dismissed from the hospital on August 17, 1934.

On September 12, 1934, he presented himself at the outpatient department. A most remarkable improvement had taken place; he had had a true parietic remission. He has maintained this status very well on chemical antiluetic treatment. He is back working as a salesman, gaining weight, looks and feels fine.

Case 2. A. S., white, male, aged 47, married. This case was reported in a previous communication in this JOURNAL.³⁴ He has now been under observation an additional year and has held the ground he gained. He has had an uneventful course with his follow-up treatment. Serological reversal has occurred in both blood and spinal fluid; he has been dismissed from active treatment and is now on probation.

Case 3. R. N., white, male, married, aged 41. This man was diagnosed *tabes dorsalis* and given malaria in August, 1933. His relief lasted five months at that time and since then he has had several recrudescences of excruciating, unbearable lancinating pains. The first two times he was put in the hospital for short courses of hot baths. This procedure controlled the pains very well so that now he has learned to take the baths himself at home whenever indications arise.

Belonging to this group, too, is the interesting eye case described above, with changes in visual fields illustrated in figure 3.

X. CENTRAL NERVOUS SYSTEM

As is true in any large general luetic clinic the central nervous system syphilis comprises by far the largest share of cases. Correspondingly, we have run many more of this type of case than of any other one class. Our findings and results correspond on the whole to those to be found in the literature in reports on the use of the various other forms of pyretotherapy, viz., diathermy, radiotherm cabinets, etc. We have attempted to concentrate this report rather on somatic syphilis than on central nervous system type inasmuch as there are but few studies of the former type available.

Generally speaking, we have preferred to use hot baths in central nervous system syphilis in two types of case; namely, either as a follow-up on malaria, as discussed above, or for symptomatic relief, as in the distressing cyclic events in *tabes*. For asymptomatic paresis we have much preferred malaria whenever possible—in fact, we consider this the indication *par excellence* for malaria. For true parenchymatous paresis too we feel that malaria offers the best hope.

We have treated several cases of luetic meningitis with hot baths. The following case report is an interesting example:

REPORT OF CASE

A. H., male, white, married, aged 30. First seen in the outpatient clinic on October 19, 1934, complaining of headache; epileptiform attacks of late; loss of control of speech at times.

History of chancre two years ago and was given twenty-five treatments of salvarsan and mercury; later received fifteen or twenty injections of neosphen-

amine and considerable bismuth. Since then he has had thirty-five injections of salvarsan and twelve injections of mercury.

Examination reveals a rather pale and apathetic patient. Pupils slightly unequal with bilateral hippus; deep reflexes sluggish; Romberg absent; slight blurring of speech with inability to finish sentences at times (motor aphasia). Blood Wassermann negative, Kahn plus. Spinal fluid shows positive Pandy, cell count of thirty but no changes in the Wassermann, Kahn or Lange.

He was admitted to the hospital on November 2, 1934, with diagnosis of acute meningovascular syphilis. That night he became stuporous and completely unable to talk. A lumbar tap was done again that night; this time cell count of 116 was found with the other findings the same as previously.

On November 5, 1934, a course of hot baths was begun. Temperature responses were excellent. He was dismissed on November 20, 1934, with his speech fully restored and general condition markedly better. He is now taking follow-up treatment in the outpatient clinic.

These cases have been selected to show the versatility of application of pyretotherapy in syphilis. In all these cases, be it remembered, the treatment was confined to baths and baths alone, except a very few which were designated accordingly in the report. This is, of course, necessary for the purposes of a study which needs to be evaluated very closely and justly. But it must be borne in mind that it is our contention that heat is always an adjuvant in the treatment of syphilis and that the ideal treatment consists not in treating a case solely with heat but in the use of heat as a supportive or preparatory measure to the chemotherapy.

In conclusion, we append a word of warning: There is a very definite albeit minimal danger involved in the administration of therapeutic hot baths. Obviously, when a procedure has so profound an effect on the metabolism as to raise the body temperature 4 to 8 degrees it is impossible to divorce such a procedure from all element of risk. The frank contraindications have been listed above; but there is the occasional patient who, despite an apparently favorable status as a candidate for hot baths, nevertheless reacts unfavorably and even alarmingly.

We have had one death in a child. The mechanism was by central action on the thermal center producing a sunstroke condition. In this case there occurred a temperature of 108, tetany-like convulsions, coma and death.

We have had one case of *tabes dorsalis* in which the lancinating pains were much worse after the baths and despite subsequent treatment has consistently failed to improve for eight months. In optic atrophy, too, the results are sometimes disappointing. The explanation of these untoward results lies very probably in the belief that there has been progression of the pathology in the cord, sensory nerves or optic

tracts, respectively, to the stage of such advanced infiltration that the therapeutic stimulus has precipitated a premature fibrosis with functional impairment or pain.

CONCLUSIONS

1. Efficient temperatures can be produced in syphilitic patients by the use of the hot bath.

2. We believe that in some way the defense mechanism of the body is raised and the virility of the organism lowered simultaneously by the use of hyperpyrexia. Experimental work seems to show that temperatures of 104 F. and above set the defense mechanism in motion. In the cases presented here it was not necessary to keep the temperatures at this level for long periods of time.

3. With the exception of early seronegative syphilis, inadequately treated syphilis with recurrent manifestations and early malignant syphilis, heat should not be used in the early types of syphilis. Heat is best applied in the later forms of syphilis no matter what the manifestations.

4. The provocative Wassermann effect was produced in 20 per cent of our seronegative cases.

5. By the application of heat alone it has been shown that syphilitic manifestations disappear temporarily; if subsequent treatment with heavy metals is employed they disappear permanently.

6. Heat is an efficient therapeutic agent in recurrent neurosyphilis where malaria has already been used.

7. The manifestations in the somatic system disappear with promptness.

8. We predict that heat as an adjunct to the treatment of latent syphilis will become an integral part of the adequate treatment of syphilis.

9. Malaria still remains supreme as the treatment of neurosyphilis.

10. Heat as a therapeutic agent is probably the equal of malaria when used in other than neurosyphilis.

11. It must be borne in mind that the work presented here is experimental, and is not presented with the idea that all the statements herein made are absolutely proved.

12. We have shown that any form of hyperpyrexia enhances subsequent treatment.

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MONGOLISM IN A NORTH AMERICAN INDIAN

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Having contributed a most apt description of mongolism, Langdon Down¹ threw a certain confusion about it by adding that it is "the result of degeneracy among mankind" by virtue of which imbecility may reveal itself through resemblance to an alien race. This conception of an ethnic standard for mental defectives seems to have attracted wide attention and in the case of mongolism has persisted to this day; that is for almost seventy years and is still zealously held in some quarters,² although the Malay imbecile, the Tartar imbecile, the American and the Negroid imbecile, also described by him, have long since disappeared from the nomenclature.

Moreover, the thesis that mongolism is in fact a reversion to a former type of being, to a mongolian or a premongolian ancestor, carrying us back to preglacial periods² is not strengthened by the astonishing frequency with which it continues to be with us, remembering that these individuals do not procreate and that every one of them is always the end of his line. Lastly, the genes of such ancestors if preserved intact as they doubtless could be throughout this vast lapse of time would, in going back to the tertiary period of our existence on this earth, have come through countless billions of individuals and would by now have reached a dilution point which would make the occurrence of a single case almost a miracle. We know to the contrary that mongolism is common and that, contrary to the proponents of this theory, it is very probable that no race is exempt. In this country there are many thousands of instances and were their proportion to the general population spread throughout the world it would show that between a quarter of a million and a half million of these individuals exist at this time.³ If these figures are even remotely correct, and they are probably not more than remotely correct, the idea that mongolism is a reversion to a propithecantropoid ancestor is considerably weakened, and it is very wrong I believe to speak of mongolism as a racial character whatever the appearance of the individual may be, for mongolism is always defect and the brain of such a person is always defect because it is part of a mongoloid body which there is reason to believe is defective in its entirety.⁴ Defectiveness of any sort may hardly be said to owe its origin to race as such although in this disease by these

authors there is confusion between race and disease, and this cannot be accepted.

With this introduction it may be mentioned that mongolism has been described according to the compilation of Brousseau⁵ among a score of racial groups not including the Scotch and the Irish in which it is known to exist and in the Mexican, of which a case was reported from this Clinic a few years ago.³ The present instance in a North American Indian lends weight toward establishing the universal distribution of this disease. It is the first report of a case of mongolism in this race that I am aware of.

REPORT OF CASE

R. M., out-patient department, Washington University School of Medicine, female, aged 2 years 10 months. Father 43 years old, a full blooded Osage Indian according to his recollection of the matter. Mother a full blooded Blackhawk Indian, also according to the knowledge of Mr. M. The mother died recently at the age of 40. Two other children said to be normal preceded the birth of this child. Her coloring although dark is not negroid, hair is long, straight, silky and soft to the touch, really very pretty hair and of a black in which another color tone, one might think of blue, is seen; it is not at all the dead black of the kinky-haired Negro although some of this color impression may perhaps be ascribed to its sheen. Head circumference is 18 inches and cephalic index 83 showing the usual microbrachycephaly of mongolism. The face is definitely although not strongly mongoloid, epicanthic folds are broader than normal with slightly narrowed palpebral apertures. She has a small, rounded mongoloid nose and chin with full round lips. Height is 35 inches which is very good for a mongoloid of this age although the height discrepancy of this disease does not as a rule become pronounced until later in life. Her weight is 25½ pounds as against an average for a normal child of about 31 pounds. Body feel is typical



Fig. 1. Mongolism in a North American Indian. Father, Osage, mother, Blackhawk.

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of mongolism showing babyish softness with elasticity, reduced turgor and the characteristic redundancy; this last by exception is more marked on the chest than the back of the neck where it is often best appreciated. Abdomen is relaxed and protruberant. Muscle tone is poor and all ligaments are very lax; the feet can be placed in almost any club-foot position. The nipples are the typical small beads with absence of any elevation of the areola commonly seen in mongoloids, labia majora are of the full round "pillow" form not infrequently seen in these children. Hands are of the usual short-fingered, spatulate type, both little fingers are incurved as occurs in about 80 per cent of these cases and much more pronounced on the right. The palmar surfaces of both little fingers and thumbs show three creases, not two. The rounded feet with stubby toes and wide separation between the first and second are very satisfactory for mongolism. She is able to stand erect with help but not alone and can with assistance take a few steps; she much prefers however to get along by herself, walking quadruped on her hands and feet, the body well elevated from the floor, and is quite adept at getting around in this way. She makes sounds, can call for help and cry vigorously with the classical frightened grimace of the mongoloid but is unable to say a word understandably. Her disposition is very good as is almost invariably the case in these children. The accompanying photograph shows in addition to some of the mongoloid features, the long straight hair of the mongolian races from some one of which the North American Indian is probably descended. Its color tint, softness and silkiness must be left to the imagination.

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FOOD POISONING FROM ICE CREAM ON SHIPS

The occurrence of at least four outbreaks of food poisoning, epidemiologically traceable to ice cream containing nuts, occurring aboard an ocean liner sailing from the port of San Francisco, led to an investigation of the circumstances surrounding the manufacture, storage, handling and serving of ice cream aboard the vessel which J. C. Geiger, A. B. Crowley and J. P. Gray, San Francisco (*Journal A. M. A.*, Dec. 14, 1935), present. Investigations made by an observer-inspector, aboard for a regular trip, revealed many possibilities of contamination of the milk food product, which was made aboard ship. The correction of certain undesirable practices and the use of ice cream from shoreside sources have resulted in no recurrence of food poisoning aboard this vessel. Since the lower temperature used in ordinary refrigeration and ice cream freezing have only growth-inhibiting and not bacteria-destroying power, and since milk and milk food products, because of their inherent character, offer excellent bacteria culture medium possibilities, ice cream and other milk food products should be subject to rigorous standards in production, processing and marketing, with the provision of every reasonable safeguard to the public health.

REACTION OF WATER ON THE STAINING OF BLOOD SMEARS

A DISCUSSION OF ITS INFLUENCE

R. B. H. GRADWOHL, M.D.

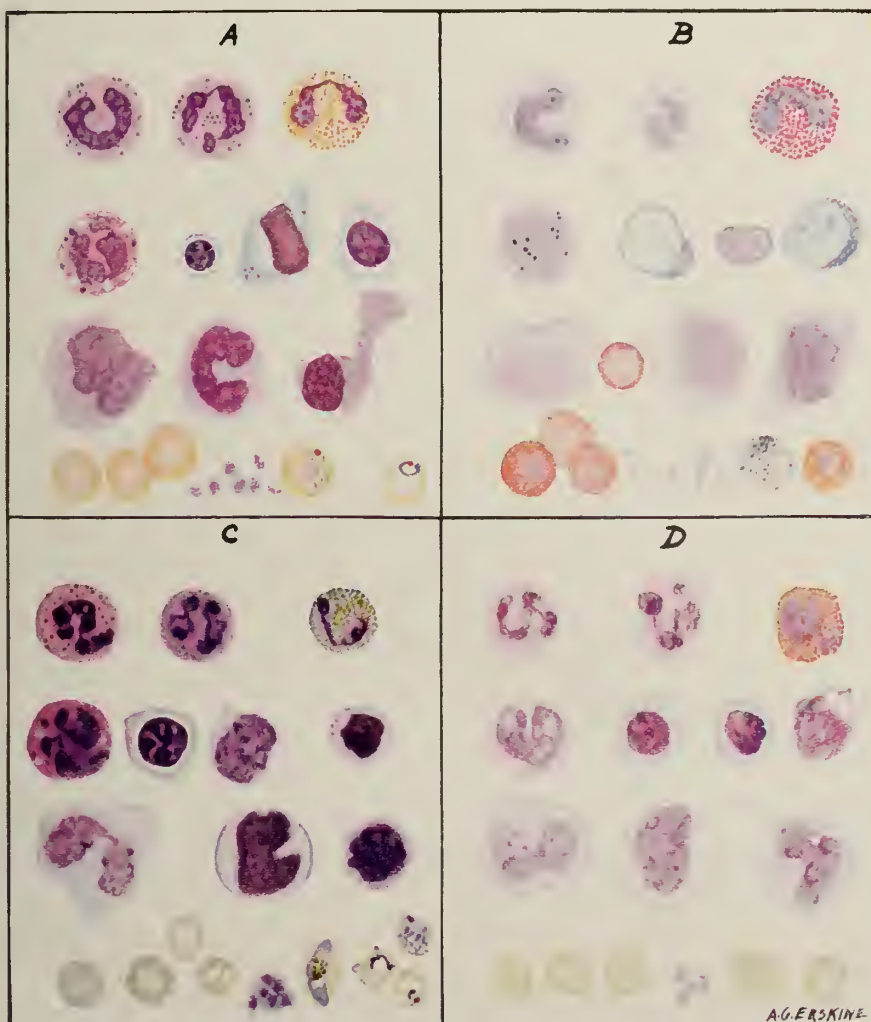
ST. LOUIS

The study of blood films is becoming more and more a matter of routine procedure in clinic, hospital and private practice. Standard textbooks and monographs of hematology have given a wealth of information to the medical profession on the modern technic and interpretation of hematological findings. Laboratory manuals and textbooks on clinical pathology are fairly uniform in directions regarding staining of blood. But little is said concerning the pitfalls in the proper staining of blood films. These pitfalls largely reside in the control of the reaction of the distilled water which is used as the diluting and washing fluid. Purchasing agents of hospitals and clinics often complain to manufacturers about "faulty" Wright and Giemsa preparations which have been obtained from reliable sources. Faults lie not so much in the quality of the dye or the process of manufacture of the blood stain as in the lack of control of the proper reaction of the water used in connection with these stains.

A differential count cannot be properly and accurately made with a poorly stained preparation. Therefore, too many details cannot be given in the proper making of the blood film. We believe the use of Giemsa stain for blood smears offers the best method of differentiation of various types of blood cells; also, that this stain is more stable than any other. These remarks concerning pitfalls apply equally to the Wright or other Romanowsky preparations used in blood staining.

There is an inadequate stress on this subject in the various textbooks on clinical laboratory procedures. For instance, Todd and Sanford¹ state in connection with the staining with Wright's stain: "After one minute add to the staining fluid on the film the same quantity of distilled water by means of a second medicine dropper. This may be done by counting drops. Instead of distilled water it is much better to use the buffer solution of pH 6.4 described below. Blow gently on the diluted stain to make an even distribution, . . ." Furthermore, on the same page, they refer to McJunkin's² article by suggesting "a buffer solution instead of distilled water in the second step of the procedure. This buffer solution with a pH of 6.4 is made by dissolving 6.63 gm. of monobasic potassium phosphate, and 3.20 gm. of dibasic sodium phosphate

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BLOOD CELLS AND MALARIAL PARASITES, Giemsa Stain, with

A. Neutral Water

C. Alkaline Water

B. Acid Water

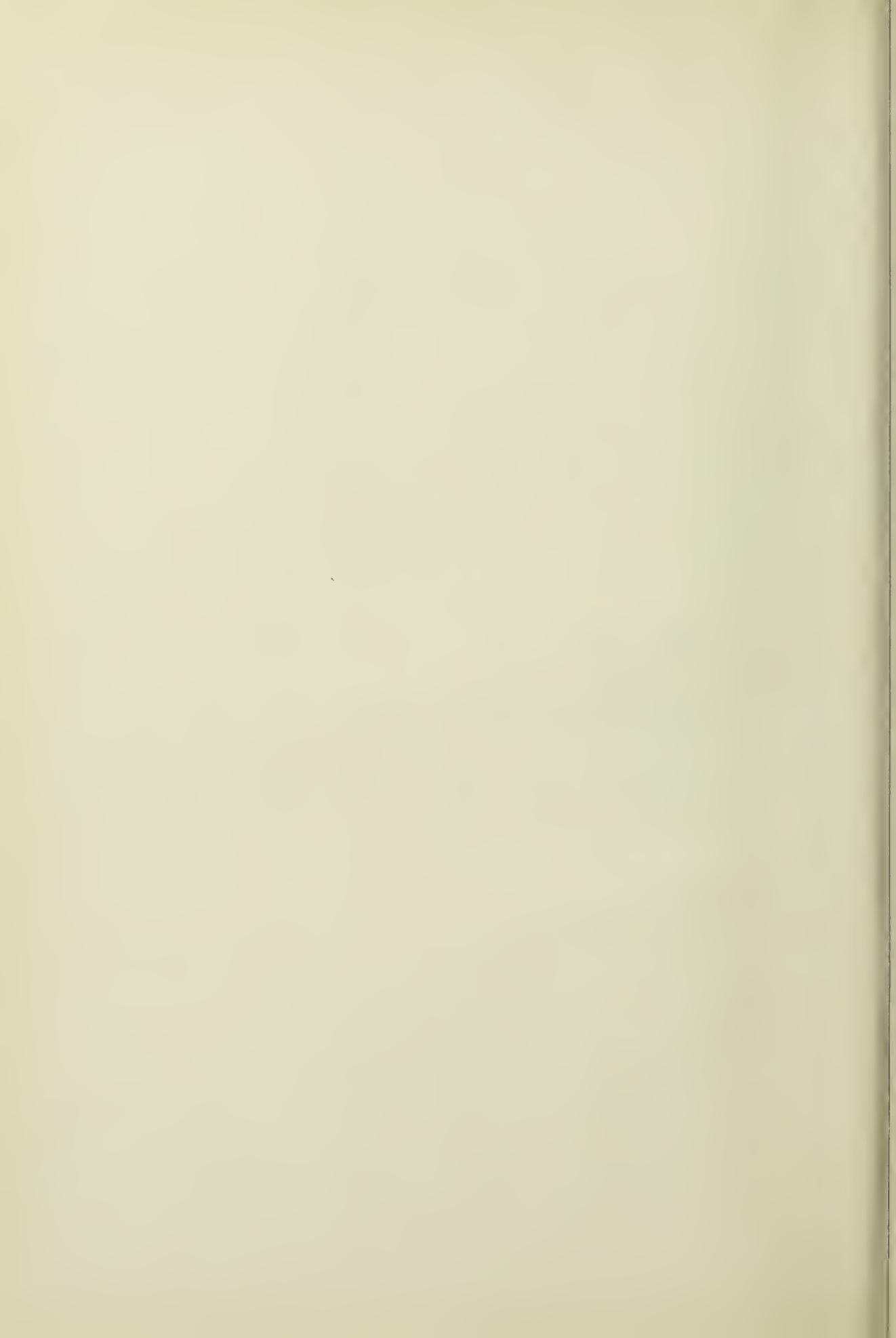
D. Excess Washing after Staining

Top Row: 2 Neutrophiles and an Eosinophile

Second Row: 1 Basophile and 3 Lymphocytes

Third Row: Monocytes

Fourth Row: Erythrocytes, Blood Platelets, and Malarial Parasites



in one liter of distilled water. The phosphates should be recrystallized and the sodium phosphate should be exposed to the air for two weeks to lose its water of crystallization."

Kolmer and Boerner,³ in discussing methods for staining blood smears, state in connection with the Wright stain that the following method, employing a buffer solution, is also recommended by Giordano: "(a) Buffer solution: 6.63 grams of acid potassium phosphate and 3.2 grams of dibasic sodium phosphate are dissolved in 1000 cc. of distilled water." Nothing further is stated about the difficulties which will be encountered unless the reaction of the water is carefully controlled.

In Nicholson's⁴ book it is stated that the causes of poor results are precipitation on slide, evaporation and scum. Also, another cause of poor results is lack of staining of the red cells and the nuclei of white cells. He also states: "If the red cells appear greenish instead of pink the stain may be of too recent preparation or the glassware or distilled water may be alkaline. . . ." Further along he states that "If the red cells are buff or light pink and the nuclei of the white cells faint or unstained the fault is due to acid in the stain, on the slide or in the distilled water." He recommends rendering the water slightly alkaline under these circumstances and that if this does not succeed the fault is in the stain and it will have to be discarded.

Osgood and Haskins⁵ in their book recommend the buffer phosphate suggested by McJunkin. They state that "in an emergency distilled water may be used instead of the buffer phosphate, but it is not nearly so satisfactory." On the same page they state: "If normal red cells stain bluish or greenish the fault is usually due to the use of water instead of phosphate, to contamination of the phosphate with alkali, or it may be due to overstaining and the time should be decreased."

We find in the fourth edition of "Laboratory Methods of the United States Army"⁶ the following:

"... The exact time required for staining, and the pH of the water, must be determined for each lot of stain prepared but with a pH of 6.4 to 6.8 the interval given will be approximately correct.

"A pH of 6.8 is usually satisfactory. Thoroughly mix the two salts, as shown in table 12, in a mortar and use 1 gm. to 2000 cc. of distilled water. It may be necessary to vary the amounts of phosphates to obtain the desired results. Red is increased by lowering, and blue is decreased by raising the pH.

"Microscopically, a properly stained blood smear will show red cells with a copper or tan color; lymphocytes with a pale blue cytoplasm and a dark blue nucleus; and neutrophils with a finely granular pink cytoplasm and a dark purplish-blue nucleus. If these characteristics are not distinct prepare additional slides."

"Table 12. *Buffered Water*
(For use with Wright's stain)

pH	Na ₂ HPO ₄ + 2H ₂ O	KH ₂ PO ₄
	gm.	gm.
6.2	1.816	9.504
6.5	2.723	8.316
6.8	4.539	5.940
7.0	5.447	4.752
7.2	6.355	3.564
7.4	7.262	2.376

A simpler and better way for neutralizing water employs hematoxylin as an indicator. Water neutral to hematoxylin in our hands has proved better suited to staining blood cells than has water with a pH of 6.4. Attention was called to this in the author's textbook.⁷ We have found that water which is neutral with the use of hematoxylin as an indicator has a pH of 7.0 or 7.2. This, therefore, gives a better approximate neutrality point than the buffer methods alluded to. The settlement of this neutrality point is especially necessary in dealing with smears for the diagnosis of malaria, particularly thick smears and thick drops. For instance, Barber and Komp⁸ state in regard to the staining of plasmodia with the use of the thick drop: "Preliminary dehemoglobinization is unnecessary. Immediately before use dilute the Giemsa stock solution with distilled water of a pH 7.0 to 7.2."

METHOD FOR NEUTRALIZATION OF WATER

Neutralize enough water for the day's work. The bottle used for storing the neutral water should preferably be pyrex, or should be a bottle having been used for no other purpose than to hold distilled water. No rubber connections should be used on the still. If distilled water is purchased in large quantities it should be poured, not siphoned, into the bottle that is to hold the neutralized water.

Pick up a few crystals of hematoxylin crystals with a pair of forceps and place in a test tube. It is well to rinse the tube with the water before testing because the tube might not be neutral in reaction. Pour approximately 5 cc. of the water to be neutralized into the test tube containing the hematoxylin crystals and note the color. If the water is neutral it will become a pale lavender-pink within two minutes. If the water is acid it becomes yellow and remains yellow for longer than five minutes. If it is alkaline it becomes reddish purple immediately, or before one minute. If the water is acid, as it usually is, 1 per cent potassium carbonate is used as a neutralizing agent. If it is alkaline use 1 per cent hydrochloric or acetic acid. Add the neutralizing agent, a drop at a time, to the stock bottle of water to be neutralized shaking after the addition of each drop, and again testing the

reaction. When the water turns pink without a trace of yellow in two minutes it is neutral and may be used.

Water handled in this manner gives excellent staining results in connection with Giemsa or Wright stain. For the information of those who have not followed out the variations in staining characteristics of blood cells with changes in the reaction of the water, we call attention to the following points regarding the appearances of blood cells where the water is either acid or alkaline:

If the water is *acid*, the erythrocytes become a bright red orange instead of light yellowish orange. All eosin stains become very bright reddish orange. The eosinophiles stand out particularly brilliantly. In a count of eosinophiles alone it is advisable to use the naturally acid distilled water. The nuclei of all cells will stain a pale sky blue. The cytoplasm of all lymphocytes and monocytes is very pale blue. These two cell types cannot be definitely differentiated from each other if the water is acid. The neutrophilic cells become extremely pale, the nuclei staining either pale blue or pale lavender, and the cytoplasm staining a definite pink. The age of the various neutrophiles cannot be determined accurately because of the indefinite staining of the nuclei thus rendering a Schilling count practically an impossibility. Blood platelets are very pale blue. Malarial parasites lose much of their color, the red chromatin staining very pale and the blue cytoplasm being scarcely visible. This naturally makes their identification and differentiation very difficult.

With *alkaline* water, the erythrocytes stain blue or green. A purple cast is imparted to all blues in the blood preparation. The cytoplasm of the lymphocytes becomes gray or lavender and cloudy; that of the monocytes is decidedly pinkish lavender or even purple, while the neutrophilic cytoplasm is deep lavender or almost red. Eosinophiles with alkaline staining show deep gray or blue granules instead of the yellowish appearance that is obtained when neutral water is used. The granules of all neutrophiles become very intensely overstained so that they not only appear more numerous but larger than normal. This makes the detection of toxic granulations impossible. Chromatin granules of all nuclei assume the appearance of large black lumps within the nuclei. The identification of any cells having nucleoli becomes extremely difficult. Erythrocytes with alkaline water not only change in staining characteristics but also appear as if they have no center. Frequently we see horny edges so that all the cells look crenated. Most leukocytes look frayed at the

edges. Malarial parasites stain particularly well with slightly alkalized water but if the water is too alkaline it is impossible to differentiate the chromatin from the cytoplasm. Blood platelets with alkaline water swell and stain reddish lavender. One cannot identify them by their structure but only by their size and arrangement.

Another danger in staining blood films is in using too little of the staining solution, or in over-washing. Water will decolorize the stain. For this reason we suggest that slides be washed very slightly, then allowed to stand on end to dry so that the excess water may drain off instead of removing the color. In staining, the slides should be placed on a staining bridge over a staining pan and as much diluted stain as they can accommodate should be used. If slides are understained or over-washed the true color will be lost, the nuclei and cytoplasm will blend instead of being distinct and most of the cells will look very fragile. Understained cells appear very much like cells stained with acid water.

The color insert gives in detail the various changes noted above in connection with improperly prepared water.

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SUBJECTIVE MENTAL AND PHYSICAL REACTIONS TO A FREE FALL IN SPACE

From a study of the subjective reactions to a free fall of approximately 1,200 feet in space, made by means of a delayed parachute jump, Harry G. Armstrong, Dayton, Ohio (Journal A. M. A., Oct. 5, 1935), concludes that: 1. In a free fall in space the mental reactions are normal, except as influenced by fear, excitement or other factors not attributable to the fall. 2. In a free fall in space there is produced only one abnormal physical sensation and this consists of a very gentle, evenly distributed generalized, superficial pressure on the downward surface of the body. 3. There is an apparent diminution of hearing acuity from an undetermined cause. 4. Position in space and motion through space are recognized solely by means of vision. 5. Depth perception acuity is such that a speed of approximately 100 feet per second at a distance of 1,900 feet from an object is required to recognize motion toward that object. 6. Delayed parachute jumps are an entirely practical means of avoiding certain highly hazardous aerial situations.

THE PRELIMINARY STAGE OF LABOR

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One of the most frequent questions asked by the expectant mother is "How shall I know when I am in labor?" This is a pertinent question and is not easy to answer. As physicians we mention a bloody discharge, the rupture of the membranes and pain. We describe the timing and character and frequency of pain to the patient; later she calls us thinking she is in labor. We may go to the patient's home or advise her to go into the hospital. When we have seen the patient and have made the usual examination we frequently can only suspect that she is in labor. Hours may pass, the patient may have frequent pains with so much distress that we do not feel that it is best to leave the hospital. This has been especially true of multiparae; yet we are not certain that the patient is in labor. There may be changes in the station and condition of the cervix but usually not continuous and progressive dilatation of the cervix.

As I have studied this problem I find that many of my patients have a period in which little or no progress is made. Previously I have discussed various problems associated with the duration of labor. In each instance I have been compelled to say my figures represent my own conception on duration. I have known that my statistics did not coincide with all other observers and it has been the length of the first stage of labor that was questioned. With a patient in the hospital, having pain and not making progress, the question arises: Are these labor pains; or, what hour should be recorded as the onset of the first stage of labor?

For the last two years I have studied this problem in each case and have designated this period in which the patient has been sent into the hospital with pain but with only limited progress, as the preliminary stage. This terminology has been of immense value to me both scientifically and psychologically and I trust as I relate my experiences they may be of value to you.

In observing the mechanism of labor and the clinical course of labor it is evident that the management of each stage separately determines the final results. I have accepted the time-honored teaching that labor is divided into three stages. We may all agree that the spontaneous completion of the first stage of labor and the defined limits of the second and third stages

have been accepted. However the question of what hour to designate as the beginning of the first stage of labor or the onset of labor is a question of importance for the following reasons: First, there should be no interference before complete dilatation; second, there may be considerable prolongation of the first stage of labor; third, it is necessary to know the rate of progress at all times in order to support the patient properly looking to successful completion of the labor.

In other words, the patient through her own efforts must or should initiate and complete the first stage of labor. In a few cases the first stage of labor may be artificially produced but you are familiar with the dangers of such a procedure.

For my private office and hospital records I have attempted to keep data on the duration of labor with the qualifications mentioned. Invariably my associate or the intern has asked, "When shall I say labor started or when would you say was the beginning of the first stage of labor?" The answer is not always spontaneous. The reports of others on the first stage show numerous discrepancies. It is true that at times the second stage is not accurately recorded but is estimated. However, this inaccuracy is a matter of the "timing" of examinations.

We have had interns in the various hospitals in Kansas City from the leading medical schools of the United States. Frequently we have asked them: "When is a patient in labor or when do you estimate the beginning of the first stage of labor?" With few exceptions their answers have been different. Some of the answers have been: the first stage of labor is the dilating stage; it starts with the beginning of labor pains; a patient is in labor when pains are of sufficient force and duration to produce continuous or progressive dilatation; a patient is in labor when after having labor pains the cervix is dilated 4 cm; or with labor pains there is descent of the presenting part, tension of the membranes is present, and there is progressive dilatation of the cervix.

We have seen many of these symptoms in patients yet, after hours have passed, pains have stopped and the patient has been sent home. Some have returned in a few hours only to show continuous and progressive dilatation; others have waited days before returning. We have given sedatives and have noted no further pains for hours or even days. Another group has been given sedatives and the pains continued, even during sleep, but usually without progress. Patients in whom the membranes have ruptured may have some type of pain yet go for days without progress, especially if the membranes have ruptured above the presenting part. Spe-

cial cases could be cited; other classes of cases could be reviewed; but we are here interested in those examples of pain without progress.

In analyzing these cases I might theorize that the hormone, secretion, or the unknown stimulus that causes the onset of labor is not sufficient to produce effective pains. Be that as it may, this stage or period of labor is most definite in character and requires careful management. May we again suggest that this period be considered the "preliminary" stage of labor? I would further suggest that when continuous or progressive dilatation of the cervix can be determined we should say that true labor has begun.

I am certain that each of you is thoroughly familiar with this problem and, like myself, has spent many hours in waiting. In home obstetrics this condition is most disquieting and sooner or later friends and relatives question the safety of the mother and child. The physician may be satisfied that only time is necessary to solve the problem yet the anxiety and fears of relatives and friends may become infectious. The pain, the exhaustion and anxiety of the patient, the anxiety of friends and relatives are important problems to the physician. It must not be forgotten that while obstetrics is a scientific and highly specialized branch of medicine, the art of obstetrics in the home and in the hospital is equally important. I am familiar with two cesarian sections that were done by the same physician in the same month and his only excuse for the operations was that the "cervix would not dilate" after hours of labor pains. I am also familiar with other cesarian sections that were done for similar indications.

Like many others, I have been guilty of using bags, rupturing the membranes and giving castor oil and quinine in this period. I have not given pituitary extract but have reports from those who use it in small doses to hasten dilatation. I am led to conclude from my own experience, by study of my records and from observing the experience of others, that mechanical interference is contraindicated in this period and that the judicious use of sedatives and waiting will produce the best results. From my private records I will mention two instances in which, after a long and severe test, labor pains did not produce dilatation. The first case was a Para iii; previous labors normal. The patient was at term, had an average sized baby, a large pelvis with L. O. A. position. After eighteen hours we were satisfied that the patient had had a severe test of labor. Up to this time only rectal examinations had been made. We then made a vaginal examination that should have been made several hours before. The cervix showed an old lac-

eration that contained much scar tissue. Dührssen incisions were made and the patient delivered normally in three hours. To discourage the too free use of this procedure, I might mention that lacerations extended well beyond the incisions and gave us considerable alarm. We were able to repair these lacerations but remember this patient when thinking of Dührssen incisions in other cases.

The second patient, seen in consultation, was a Para i, 30 years old, who had been in labor 28 hours with periods of rest. The physician reported that he could not find the cervix and I confess that I could not find the cervix from vaginal examination. Examination with a speculum showed a ring with a diameter of about six centimeters with a membrane within the ring. Three small perforations were seen in which hair was protruding through the perforations. One of these openings was enlarged with a dressing forceps and immediately the entire membrane was broken. Within four hours the patient delivered normally and recovery was uneventful.

We recite these cases to bring out the fact that it is only in rare instances the cervix will not dilate if given sufficient time.

We believe important the education of patients in the prenatal period to the fact that such conditions are frequently seen; that labor may be prolonged; that the discomfort of the patient may be increased, yet that this period is often a part of the picture of childbearing. For some time we have discussed this period of labor with patients and relatives, always with the assurance that when properly managed there should be no deleterious effects. The success of this assurance has been such that the fears of patients and relatives have been allayed. It is now most gratifying to hear patients discuss their "preliminary period" rather than how long they were in labor.

This period calls for rare judgment. In each patient the judicious use of sedatives and waiting determine a successful outcome. Realizing that even after hours we are only entering the true first stage of labor the general condition of the patient is of first importance. It is when continuous and progressive dilatation of the cervix is apparent that we can consider the patient is in true labor and that even then several more hours may be necessary for the successful termination of labor. The fetal heart count below 150, the maternal pulse rate below 100, moist mucous membranes, sustained nourishment and a sustained physiological balance of the patient are *prima facie* evidence of the condition of the mother and child.

We prefer morphine as a sedative for this period of labor. In some cases morphine com-

bined with scopolamine, oil ether, or the proved barbitol preparations are of value. I believe that, aside from morphine, other sedatives should be limited to hospital use or, if in the home, given only when personal supervision is possible. When we mention sedatives we are mindful that the treatment of this period should be a separate subject for study and discussion. It is important to note the effects of the injudicious use of sedatives in this period on the succeeding stages of labor and the possibility of what may have been a normal labor becoming a prolonged pathological labor.

I think the work of Calkins in estimating the force of pain is important. He suggests that the uterus be palpated at a point not immediately over the baby and that the type of pain can be determined by the response of the uterus to palpation while in contraction. With poor pains it is possible to indent the uterus while with severe labor pains it is impossible to make any impression on the uterus even with firm pressure. Having practiced this procedure I can assure you that classification of pains is made possible. While this is important in all stages of labor it is of especial value in the preliminary period. Calkins also calls attention to the types of cervixes found in labor; viz., the hard or soft cervix, the obliterated cervix and the force of the membranes and presenting part in the cervix during the pain.

It is an aid to do a rectal examination while determining the force of pains. The station, the response of the cervix to pain, descent, flexion and position may be determined, all of which adds to one's knowledge of this period. While all these findings are only an emphasis of fundamentals yet the greater one's conception of fundamentals the greater is one's knowledge of progress. I believe the palpating of uterine tension during pains and a better conception of fundamentals will give us a better knowledge of the significance of pain in this period. To know fundamentals, to know the clinical course of labor and to be able to differentiate pain will come to us only after close personal care and observation of many cases.

Duncan has said, "If you do not know a thing you are quite certain not to suspect it. If you do not suspect a thing you are quite certain not to find it."

SUGGESTIONS

First: We would suggest the beginning of labor or the first stage of labor be estimated from that time when continuous or progressive dilatation of the cervix is determined.

Second: That the pains previous to progressive dilatation should be considered as preliminary stage pains and we should realize that

proper management during this period is reflected in the subsequent true labor.

Third: We would suggest a closer study of the individual uterine contraction.

Fourth: Patients should be advised that they may have a "preliminary" period.

Fifth: Our real concern should be not in how long the labor may be but rather in how well it is managed.

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ENCEPHALITIS

THE VIRUS NEUTRALIZATION TEST AS AN AID IN DIFFERENTIAL DIAGNOSIS

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The chief clinical features of the type of encephalitis present in St. Louis during the summer of 1933 are now well established.¹ The diagnosis of this infection in typical cases during the height of the epidemic was not difficult. Mild or abortive cases however presented more serious problems. Also during the epidemic a number of clinical conditions were encountered which could be readily confused with encephalitis even by physicians having daily contact with large numbers of active typical cases.

Between July 1 and November 1, 1933, 129 patients were admitted to the Firmin Desloge Hospital in St. Louis with a diagnosis of encephalitis well substantiated. During the same period twenty additional cases were referred to the same institution with a provisional diagnosis of encephalitis. Further study in these cases either disproved the original diagnosis or at least rendered it doubtful. Since the referring physicians in most instances were to our knowledge thoroughly familiar with this type of encephalitis it is obvious that the clinical picture presented must have shown a close resemblance to true encephalitis. A number of cases studied since the cessation of the epidemic also showed confusing clinical pictures. Comparison of the complete clinical and laboratory findings in these cases with those typical of encephalitis serves as a practical demonstration of the methods used in establishing the differential diagnosis.

The following brief summary from a previous report² describes the typical picture of the average case of encephalitis encountered during the epidemic:

¹From the Department of Medicine, St. Louis University School of Medicine.

²Read at the 78th Annual Meeting of the Missouri State Medical Association, Excelsior Springs, May 6-9, 1935.

The disease was of sudden onset. Headache, muscle aches, a high fever and sometimes chills were the most important initial symptoms. The fever was irregular in type, usually terminating by lysis in from seven to fourteen days. Meningeal and cerebral symptoms, such as headache, drowsiness, stupor, mental confusion and delirium predominated. Cranial nerve palsies were relatively rare. Neck rigidity, positive toe signs, absent or unequal tendon and abdominal muscular tremors and spasticity were the most common physical findings. Some evidences of myocardial weakness were often noted in severe cases. Respiratory symptoms other than terminal pneumonia rarely occurred. Nausea and vomiting were frequently observed.

The urine occasionally contained albumen, leukocytes, erythrocytes and casts. Elevation of blood nonprotein nitrogen, particularly in cases where vomiting was severe, was not infrequent. Blood sugar tended to be slightly increased but glycosuria was rare. In the blood moderate polymorphonuclear leukocytosis was present in the majority of cases. The spinal fluid was usually clear more rarely very slightly turbid and often found under some increase of pressure. A positive globulin and a normal sugar content were the most important chemical findings. There was present practically in all cases an increased count of lymphocytic cells if the puncture was made during active stages of the disease. The colloidal gold showed a reaction of moderate intensity chiefly in the midzone similar to that found in *tabes dorsalis*. The Wassermann reaction was negative in practically all cases where syphilis did not exist as a complication. We have however one or two questionable instances of a false positive reaction.

The chief symptoms and physical findings of encephalitis can be closely simulated by a variety of clinical conditions as will be seen in the case reports which follow. The differentiation depends chiefly on laboratory studies, such as the search of the blood smear for malarial parasites, cultures of the blood, stools and urine and particularly the examination of the spinal fluid. This last often establishes the diagnosis although it must also be recognized that confusing findings are sometimes present even here.

In some cases the question may well be raised whether encephalitis did not coexist with the infection which was shown to be present. This possibility can best be eliminated by the examination of the patient's serum taken during convalescence for the presence of neutralizing antibodies against the encephalitic virus. This test which was first carried out by Webster and Fite³ of the Rockefeller Institute has a very

practical application in the study of obscure and doubtful cases. The procedure briefly consists in the incubation for two hours at 37° C. of known dilutions of the encephalitic virus with an equal volume of the patient's serum. Following the period of incubation mice are inoculated intracerebrally with 0.025 cc. of the mixture. As controls, the same virus is simultaneously incubated with serum of unexposed individuals and also with serum of a patient convalescent from encephalitis. The normal serum will not neutralize the virus and susceptible mice inoculated with this mixture will die. The convalescent encephalitic serum will neutralize the virus and the mice inoculated with this mixture will recover. The fate of the mice inoculated with the virus serum mixture of the patient to be tested indicates whether or not this patient suffered from the St. Louis type of encephalitis. This test is also of value in distinguishing the St. Louis type of encephalitis from other types of the same disease. This virus can be distinguished in this way from the causative agent of lethargic encephalitis, the encephalitis of Japan and poliomyelitis.⁴ A number of cases in which this test was used to clarify the diagnosis are included in this report.

REPORT OF CASES

Case 1, a white male, aged 17, living near Jefferson Barracks, was referred to the Firmin Desloge Hospital during September, 1933. Four days prior to entry he took sick with a severe headache and slight fever. He felt somewhat better the next day but still had headache. The following day the headache was again severe. He was sent to the St. Louis County Hospital. There it was found that his neck was somewhat rigid and a lumbar puncture was performed. This gave the following results: The fluid was under no increase of pressure. It was clear. The globulin was positive. The cell count was 52 per c. mm. The County Hospital at this time reported no other neurological findings of a pathological nature. During his stay at Desloge Hospital the following findings were observed: The pupils were slightly irregular, the left being larger than the right. Lateral nystagmus was noted on looking to the right. Upper extremity tendon reflexes practically absent on the left, present on the right. Knee jerks absent bilaterally. Positive Babinsky bilaterally. The neck was not rigid. White count 5500, red count 4,600,000, hemoglobin 12.5 gms. per 100 cc. Stabs 6 per cent, segmented neutrophils 73 per cent, monocytes 4 per cent, lymphocytes 17 per cent. We repeated the spinal puncture and found a clear fluid with moderate pressure, a negative globulin, with a cell count of 20 per c. mm. Spinal fluid sugar 56, Wassermann negative, colloidal gold gave practically a flat curve, 1111000000.

Patient ran a high temperature of irregular type typical of double tertian malaria. Malarial parasites were found in the blood forty-eight hours after entry. On quinine therapy the patient made a very rapid recovery. No virus neutralization test was done, hence, we cannot answer with certainty the question of the possible coexistence of encephalitis and malaria. The high spinal fluid cell count found on two examinations at different hospitals indicates either that high cell

counts in the spinal fluid may occur during malaria or that we were dealing with a combination of malaria and encephalitis. The response to quinine was typical of malaria alone.

Case 2. White male, aged 45, Brentwood, St. Louis County. Admitted by transfer from St. Louis County Hospital on August 22, 1933, with the following notation: "It is impossible to get any history from this patient other than that he has been sick since August 1 and that the illness began with headache. Patient is very lethargic. He has severe neck rigidity, a pronounced tremor of tongue and hands and does not know his whereabouts. Has pathological toe signs. Spinal fluid shows increased pressure, a cell count of 4 and a weakly positive globulin. Diagnosis, encephalitis."

These findings correspond closely to those of our entrance examination as regards mental condition and stiff neck and tongue and hand tremor. He had a hematoma over his right eye received in a fall at home; bladder distended, abdominal reflexes sluggish, cremasterics absent. However, no pathological toe signs were found. Our impression was also encephalitis. He was markedly dehydrated at the time of entry and had a blood pressure of only 82/54. His urine showed a trace of sugar and diacetic acid.

White count 3150; red count 2,830,000; hemoglobin 7.6 gms; differential, Juvenile 1 per cent, segment 45 per cent, eosinophiles 7 per cent, mononuclears 14 per cent, lymphocytes 16 per cent, N. P. N. 27 mg., blood sugar 99 mg., blood Kahn negative. Spinal puncture showed normal pressure, cell count 2, negative globulin, sugar 57. Colloidal gold test showed a tabetic curve as follows: 1123311000. Not much temperature. Two days after entry estivo-autumnal malarial parasites were found in blood. Quinine started at once was followed by rapid complete recovery. About three months later serum was secured and a virus neutralization test carried out.

The virus neutralization test in this case shows no neutralizing bodies in the patient's serum. This would indicate that encephalitis did not coexist with the malaria. It will be noted that the spinal fluid cell count was normal in this case.

Case 3. White male, aged 81, Wellston, took sick on the afternoon of August 17, 1933. According to patient's story (which changed somewhat from time

to time) he suddenly developed difficulty in coordinating the movements of his limbs and a little later developed fairly severe occipital headache, general body aching and dizziness.

The admission note of the County Hospital states that the patient was lethargic, had pronounced tremor of hands and arms and neck very rigid. Babinsky was negative but other toe signs pathological. No spinal puncture was done at the County Hospital. He was entered as a patient at Desloge Hospital, August 24.

Patient had had malaria in infancy and typhoid at an uncertain date. There was also a record of an apoplectic stroke.

Patient showed confusion but no actual coma on entry, marked tremor of hands and arms (coarse jerking movements). Nystagmus present, advanced dental caries, tongue deviates to left on protrusion and shows fine tremor; some neck rigidity. Heart somewhat enlarged. Systolic murmurs at apex and in aortic area. Pulse 83, blood pressure 110/78. Spleen not felt. Exaggerated tendon reflexes on right. Slight left ankle clonus. Temperature at entry was 100.2°, pulse 100, respirations 24. Urine negative. Leukocyte count 12,350, erythrocyte count 5,290,000, hemoglobin 14.3 gms. per 100 cc. Differential: Juvenile 2, stab 8, segment 52, eosinophiles 4, basophiles 0, mononuclears 13, lymphocytes 21. Blood N. P. N. 33, blood sugar 99. Spinal fluid, no increase of pressure. Clear cell count 7, globulin plus, spinal fluid sugar 69 mg., colloidal gold 0000000000. Spinal fluid Wassermann negative.

Within twenty-four hours tertian malarial parasites were found in blood smears. Quinine therapy was started and yielded prompt results, fever rapidly disappearing. Three months after recovery the patient's serum was secured and the virus neutralization test carried out.

The virus neutralization test in this case was negative, so there is no evidence that encephalitis was present as a complication. The cell count found in the spinal fluid was only seven. This is quite low for a case of encephalitis.

Two additional cases of malaria were sent in with a provisional diagnosis of encephalitis. These also showed pathological neurological findings and headache was prominent among their symptoms.

Table 1. *Virus Neutralization Test*

Date of Inoculation	Type of Serum and Virus Dilution				Convalescent Serum of Patient	
	Normal Human Serum		Convalescent Encephalitic Serum		1/10,000	1/100,000
	1/10,000	1/100,000	1/10,000	1/100,000		
7/12/34						
7/13/34	+++	+++	+++	+++	+++	+++
7/14/34	+++	+++	+++	+++	+++	+++
7/15/34	+++	+++	+++	+++	+++	+++
7/16/34	+++	++	+++	+++	++	+++
7/17/34			+++	+++		+++
7/18/34			+++	+++		+
7/19/34			+++	+++		
7/20/34			All Survived	All Survived		

Table 2. *Virus Neutralization Test*

Date of Inoculation	Type of Serum and Virus Dilution				Convalescent Serum of Patient	
	Normal Human Serum		Convalescent Encephalitic Serum		1/10,000	1/100,000
	1/10,000	1/100,000	1/10,000	1/100,000		
7/30/34						
7/31/34	+++	+++	++++	+++	+++	+++
8/ 1 /34	+++	+++	++++	+++	+++	+++
8/ 2 /34	+++	+++	++++	+++	+++	+++
8/ 3 /34	+++	++	++++	+++	+++	+++
8/ 4 /34			++++	+++	++	
8/ 5 /34			++++	+++		
8/ 6 /34			++++	+++		
			All Survived	All Survived		

Malaria is therefore to be differentiated chiefly by finding the parasites in the blood and in several cases repeated slide examinations were necessary before the parasites were found. In some but not all cases the temperature curve was sufficiently different from the average encephalitis case to suggest malaria. Apparently an increase in the cell count in the spinal fluid is to be found occasionally in malaria. The virus neutralization test is the most certain method of excluding the simultaneous occurrence of malaria and encephalitis.

REPORT OF CASES

Case 4. A white male, aged 36, entered the hospital complaining of headache and fever. He stated that on September 9, 1933, while at work he struck his head against some iron object which rendered him dizzy but not unconscious. Later he developed severe occipital headache which persisted to the time of admission. The day prior to admission the patient began to run a fever and was drowsy. He lost his appetite. No nausea or vomiting occurred. At the County Hospital it was noted that he had a rigid neck and tremors of tongue and fingers. There were no pathological toe signs. Roentgen ray of skull was negative for fracture. Temperature was 103.4°. Spinal fluid was under increased pressure, cell count 24 per c. mm. Globulin weakly positive. Our examination showed pupils small and irregular. Conjunctiva injected. Right palpebral fissure wider than left. Chin twitches. Mouth draws to right with tremor of lip muscles. Tongue protrudes in midline with slight tremor. All upper extremity reflexes absent. Ankle jerks present but weak. Abdominal reflexes and cremasterics more active on right than left. No pathological toe signs.

Urinalysis was negative. White count 9000, red count 4,750,000, hemoglobin 12.8 grams per 100 cc. Differential count, stabs 4 per cent, segments 69 per cent, eosinophiles 1 per cent, monocytes 6 per cent, lymphocytes 24 per cent. N. P. N. 44 mg. Blood sugar 117 mg. Kahn negative. Three spinal punctures were done in Desloge Hospital with normal cell counts, negative globulin, negative Wassermann but with a tabetic curve in the colloidal gold test.

Several days after entry patient developed an abdominal rash suggestive of rose spots and the spleen became palpable. The temperature curve was typical of typhoid. On September 14, positive blood and stool cultures for typhoid were obtained and the patient was transferred to Isolation Hospital. Here the high initial cell count in the spinal fluid strongly suggested encephalitis. The subsequent spinal punctures yielded a fluid of normal cell count. In all other cases of typhoid which we have examined the spinal fluid cell count has been normal. Ordinarily this examination would seem an entirely safe differentiation.

Case 5. The following case illustrates the use of the virus neutralization test in typhoid. White male, aged 30, resident of St. Louis, became ill September 1, 1933, with headache, fever, stiff neck and pain in back. Loss of appetite, no nausea or vomiting. There has been general lassitude and drowsiness. Protrudes tongue to left. Upper extremity tendon reflexes right greater than left. Abdominal and cremasteric reflexes right greater than left. Knee jerk and ankle jerk left greater than right. No pathologic toe signs. (Suggestive Oppenheim at entry.) Abdominal reflexes absent at entry. Appeared to improve slowly for a while.

Urine negative, white blood count 6000, red blood count 5,000,000, hemoglobin 14.4, juvenile 1 per cent, stab 6 per cent, segment 65 per cent, mononuclears 2 per cent, lymphocytes 25 per cent, N. P. N. 33 mg., blood sugar 113, Kahn negative.

Condition remained stationary for a while, then developed thrombophlebitis and got worse. Blood culture showed typhoid and patient was transferred to Isolation Hospital. No spinal puncture recorded.

Serum of this patient taken during convalescence shows no neutralizing antibodies against the encephalitic virus.

Another case of typhoid entered the hospital with an initial diagnosis of encephalitis. A number of neurological findings were present. This patient died in less than twenty-four hours after admission. The cultures in this case were completely identified only after the patient's death and the diagnosis had previously been established by the postmortem examination. The brain showed no evidence of encephalitis.

Case 6. The following rather complicated case observed a year after the encephalitis epidemic still remains obscure in its final diagnosis. Was it encephalitis and typhoid? Epilepsy? Dementia praecox?

White female, aged 31, Richwood, Mo., entered hospital September 16, 1934.

History.—In July, 1933, febrile illness accompanied by headache, visual disturbance and convulsions. Recurrence of same symptoms in June, 1934, persisting to time of entry.

Clinical Findings.—Mental confusion, delirium, coma. Generalized hyperesthesia. Reflexes hyperactive. No neck rigidity. No pathological toe signs. Diffuse abdominal tenderness. High irregular fever.

Laboratory Findings.—Urine albumin plus, sugar negative, few erythrocytes leukocytes and casts. No anemia. Leukocytes 8000, juvenile 3 per cent, stab 17 per cent, eosinophiles 1 per cent, mononuclears 2 per cent, lymphocytes 4 per cent. Blood N. P. N. 27, blood sugar 80, Wassermann negative, blood culture negative, stool and urine positive for B. typhosus.

Spinal Fluid.—Pressure low. Cell count 0, globulin negative, colloidal gold 0000000000, Wassermann negative.

The survival of two mice given the 1/100,000 dilution of the encephalitic virus suggests a very slight protective power against this virus. The possibility

Table 3. *Virus Neutralization Test*

Date of Inoculation	Type of Serum and Virus Dilution					
	Normal		Convalescent		Convalescent Serum of Patient	
	Human Serum		Encephalitic Serum			
	1/10,000	1/100,000	1/10,000	1/100,000	1/10,000	1/100,000
7/30/34						
7/31/34	+++	+++	++++	+++	+++	+++
8/ 1 /34	+++	+++	++++	+++	+++	+++
8/ 2 /34	+++	+++	++++	+++	+++	+++
8/ 3 /34	+++	++	++++	+++	+	+++
8/ 4 /34			++++	+++		
8/ 5 /34			++++	+++		
8/ 6 /34			++++	+++		
			All	All		
			Survived	Survived		

Table 4. *Virus Neutralization Test*

Date of Inoculation	Type of Serum and Virus Dilution				Serum of Patient	
	Normal Human Serum	Encephalitic Serum	Connalescent Encephalitic Serum		1/10,000	1/100,000
9/20/34	1/10,000	1/100,000	1/10,000	1/100,000	1/10,000	1/100,000
9/21/34	+++	+++	+++	+++	+++	+++
9/22/34	+++	+++	+++	+++	+++	+++
9/23/34	+++	+++	+++	+++	+++	+++
9/24/34	+++	+++	+++	+++	+++	+++
9/25/34	++	++	+++	+++	++	+++
9/26/34	++	++	+++	+++	+	+++
9/27/34	++	++	+++	+++		+++
9/28/34	++	+	+++	+++		++
9/29/34			+++	+++		++
9/30/34			+++	+++		++
			All Survived	All Survived		Two Survived

remains that the illness in the summer of 1933 might have been encephalitis.

Case 7. White male, aged 45, came home from work as a ditch digger two weeks prior to hospital entry complaining that the heat was so bad he had to quit. He felt better the next day, got out of bed, watered the lawn and did other light work. Ten days later he rather suddenly felt worse again, was nervous, weak and had a headache. He went to bed that night and remained in bed to time of entry. Says food has no taste but ate fairly the next twenty-four hours. Then he became confused, drowsy and at intervals unconscious. No vomiting.

Patient had previously enjoyed good health. Had been in an auto accident in which an abdominal injury had caused a hernia. This had been repaired by operation nine months previously. Nothing in patient's history or family history suggestive of tuberculosis. No positive history of lues obtained but patient was unable to give his own history.

Patient on entry was in stupor but could be aroused to answer a few questions. Pupils were slightly irregular. The left was smaller than the right. Right pupil more sluggish in reaction to light than the left. Palpebral fissures equal. Cannot open eyes widely. Ears show no discharge. Face flushed. The left side seems smoother than right. Tongue protrudes in midline. Heart moderate rate, regular rhythm, no murmurs, blood pressure 160/100. Lungs seem clear throughout. Liver and spleen not felt. Muscles of fingers and hands twitch occasionally. General muscle tone increased. Tendency to catatonia. Neck rigid. Brudzinski positive. Biceps equal but not very active. Triceps and radial could not be elicited. Patellar reflexes equal and active. No ankle clonus. Abdominal reflexes absent. All toe signs positive. Temperature 102° F., pulse 100, respirations 24, leucocyte count 9100, erythrocytes 6,490,000, hemoglobin 14.5 gms. juvenile 3 per cent, stabs 16 per cent, segmented neutrophils 74 per cent, lymphocytes 7 per cent, N. P. N. 35 mg., blood sugar 100, blood Kahn negative.

Chest plate showed thickening of apical pleura, enlarged heart shadow and dilated aortic arch. Spinal puncture done on entry showed a slightly cloudy fluid, a cell count of 591 of which 97 per cent were lymphocytes. A slightly positive globulin. Spinal fluid sugar 20 mg. per cent. Direct smear showed no organisms. Colloidal gold test showed a tabetic curve. Spinal fluid Wassermann two plus with the alcoholic antigen and four plus with the cholesterinized antigen. Guinea pig inoculation with spinal fluid caused death of the animal within fifteen days and the liver and spleen showed tubercles in which acid fast organisms were demonstrated. This patient died a few days after entry. Autopsy permit could not be obtained. The low spinal fluid sugar and the positive guinea pig inoculation es-

tablish the diagnosis of tuberculous meningitis. The spinal fluid Wassermann suggests a complicating syphilis of the central nervous system.

Case 8. White female, aged 40, a resident of St. John's Station in St. Louis County. Reported to County Hospital September 9, 1933, stating that she had been ill for four days with generalized malaise, pain in her back and in the back of her legs and rather severe headache. Also pain in the lower abdomen with marked constipation. Uterus and tubes had been removed. She had definite stiffness of the neck, positive Babinsky and Oppenheim and Chaddock on the left, questionable Oppenheim on right. No increase of spinal fluid pressure. Cell count 24, globulin plus. Our examination and history fully agreed with the above. The toe signs however, varied somewhat from those reported at the County Hospital. Admitted receiving antiluetic treatment in past. Patient states on second day of illness her temperature was 104°; on entry it was 99.8° F. and thereafter was not above 99.2°. Urine showed some pus cells. White blood count 10,000. Red blood count 3,560,000, hemoglobin 11 gms., stab 12 per cent, segment 65 per cent, eosinophiles 10 per cent, mononuclear 3 per cent, lymphocytes 19 per cent, N. P. N. 41, blood sugar 113, blood Kahn 4 plus. Spinal puncture was repeated at the Firmin Desloge Hospital on the 11th showing increased pressure, clear, cell count 15 and globulin plus. Sugar 56, colloidal gold tabetic curve. Later, on the 24th, cells 10 and colloidal gold paretic curve. Wassermann 4 plus. The question here was whether it was central nervous system lues and encephalitis or central nervous system lues alone. Recovered.

Case 9. White male, aged 58, Wellston, entered hospital September 4, 1933. Stated that prior to August 28, 1933, he had been in excellent health. On that day he began to complain of pain in his left ear. This was a severe throbbing pain and accompanied by a slight fever. The earache persisted about 18 hours at which time the ear began to drain pus very abundantly and the earache disappeared. Four days later he began to complain of headache and also of pain in the back and legs. His fever returned with slight chills. On September 3 he was examined at the County Hospital. They noted the following findings: Draining left ear, severe board like rigidity of the neck. Tremor of tongue, arms and hands. Pathological toe signs. Temperature 102.6°. A spinal puncture done on this day at the County Hospital showed increased pressure, a cell count of 86, globulin positive. No organisms seen in smear. Culture showed yeast cells. Spinal puncture repeated the next morning, September 4, showed slight increased pressure, clear colorless fluid, cell count of 54, globulin plus. Smear negative. They therefore diagnosed the case on the basis of these findings as epidemic encephalitis. Up to the time of entry

into the Firmin Desloge Hospital there had been no loss of consciousness or drowsiness, no visual disturbance. Some headache persisted and the drainage from the ear continued. Patient's urinalysis was negative, white count 9750, red count 4,400,000, Hemoglobin 12.3 gms. Differential showed 3 per cent juvenile, 15 per cent stab, 6 per cent neutrophils, 2 per cent eosinophils, 4 per cent monocytes, 15 per cent lymphocytes. N. P. N. 36, blood sugar 103, blood Kahn negative. Right pupil larger than left. Upper extremity tendon reflexes, left greater than right. Gordon plus right, abdomen right greater than left, cremasterics absent, neck rigid, Kernig negative.

Because of two recent punctures at the County Hospital and because the patient seemed to improve for the first four days after entry no spinal puncture was done on entry. Consultation by the department of otolaryngology stated that the free external drainage coupled with lack of mastoid tenderness did not at this time justify a mastoid operation. On the fifth day after entry patient suddenly developed marked opisthotonos and the fever which had been 102° or below rose to 105°. A lumbar puncture done at this time showed a cell count of 7000, of which 70 per cent was polymorphonuclears and on smear and culture streptococci were found. Blood culture negative. The signs of mastoid inflammation remained uncertain. The patient died four days after the development of pronounced meningitic symptoms. It was found by careful dissection that purulent inflammation had spread from the middle ear through the inner ear and along the course of the seventh nerve to the meninges. The mastoid cells were only slightly inflamed and there was no spread to the meninges in this region. The question in this case is whether the findings at the County Hospital indicated an encephalitis or an early meningitis.

Case 10. White male, aged 35, a resident of West Walnut Manor. Patient sent in from County Hospital with statement that he complained of headaches, lethargy, pain in neck, pain in abdomen, chills and fever past week. Temperature at County Hospital was normal and remained so throughout stay at Desloge except for one rise to 99.6°. Spinal fluid was cloudy, increased pressure, cells 96, globulin plus.

He was very drowsy at entry, had marked tremor of tongue, neck quite rigid. Positive Kernig on left. Oppenheim plus left. Cremasteric left and right abdominals absent. Urine negative. White blood count 8500, red blood count 4,800,000, juvenile 1, stab 6, segment 69, eosinophile 1, mononuclear 4, lymphocyte 20. N. P. N. 33, sugar 89, Kahn negative.

September 28. Spinal fluid moderate pressure, clear, cells 92, globulin negative, colloidal gold 1111231100, Wassermann negative. October 9. Spinal fluid lucid, cells 17, globulin negative, colloidal gold 1220000000, stool culture negative, drug rash (luminal). Patient an epileptic and had been taking luminal. A virus neutralization test was carried out in this case.

The spinal fluid findings in this case are quite suggestive of encephalitis. However, similar findings oc-

cur in epilepsy following convulsions. The virus neutralization test is strong evidence against the case being one of encephalitis.

Case 11. White male, aged 26, was sent from the County Hospital on September 6 with the following history: Headache and dizzy spells past 24 hours. No vomiting. Pains in chest yesterday. Slight tremor of tongue and fingers. Neck not rigid. Positive Gordon and Oppenheim on left. Temperature 99°. Spinal fluid, moderate pressure, cell count 12, weakly plus globulin.

Later we obtained the following history: Two nights before admission patient indulged very freely in alcoholic beverages. Next morning he had a "hangover," felt sick but tried to go to work. He struck his chest in some way and could not work. The morning of his visit to County Hospital he had a severe headache and stomach ache and felt weak. Our examination revealed normal physical, neurological and laboratory findings. He remained afebrile and his symptoms had all disappeared 24 hours after entry. We did not repeat the lumbar puncture. Diagnosis: alcoholic intoxication.

Case 12. White female, aged 78, University City. Entered Firmin Desloge Hospital September 3, 1933. This patient was the mother of a definite case of encephalitis. The County Hospital in sending patient to us obtained no history but noted that she had a rigid neck, tremor of tongue and fingers and a suggestive Oppenheim. Because of spinal deformity they were unsuccessful in doing a lumbar puncture. Her temperature at the time she was observed at the county was 99.6°.

The history as later obtained from the daughter stated that patient began complaining of headache August 20. She gradually became sicker and drowsier. Was confined to bed from August 25 to time of hospital entry. Had shortness of breath and swelling of the feet for some time. No cough or hemoptysis. No vomiting.

Physical examination revealed small but equal pupils which reacted to light. Early cataract in both eyes. Slight right facial weakness. Tongue protrudes slightly to right and has a slight tremor. Neck is rigid. Anterior cervical glands palpable. Chest senile emphysematous type. Lungs hyperresonant, rales present in right base posteriorly, heart apex in 5th interspace in midclavicular line, no murmurs heard. Blood pressure 156/84. Abdomen scaphoid. No enlarged organs felt. Spine showed marked kyphosis with some scoliosis. Decubitus area near sacrolumbar region on left side, a deformity of right wrist due to old fracture was present. Abdominal reflexes absent. Triceps, biceps and radial reflexes hyperactive; the right more active than left. Knee jerks and ankle jerks sluggish with left greater than right. Oppenheim positive bilaterally. Muscles of legs tender to pressure. No ankle clonus. Patient was irrational from time of entry and had urinary incontinence. Her temperature was 101° rectal and for a time patient if

Table 5. *Virus Neutralization Test*

Date of Inoculation	Normal Human Serum		Type of Serum and Virus Dilution		Convalescent Serum of Patient	
	1/10,000	1/100,000	Encephalitic Serum 1/10,000	Convalescent Serum 1/100,000	1/10,000	1/100,000
7/12/34			+++	+++	+++	+++
7/13/34	+++	+++	+++	+++	+++	+++
7/14/34	+++	+++	+++	+++	+++	+++
7/15/34	+++	+++	+++	+++	+++	+++
7/16/34	+++	+++	+++	+++	+++	+++
7/17/34		++	+++	+++	+++	+++
7/18/34			+++	+++		+++
			All Survived	All Survived		

Table 6. *Virus Neutralization Test*

Date of Inoculation	Type of Serum and Virus Dilution				Serum of Patient	
	Normal Human Serum		Convalescent Encephalitic Serum		1/10,000	1/100,000
	1/10,000	1/100,000	1/10,000	1/100,000		
9/20/34			+++	+++	+++	+++
9/21/34	+++	+++	+++	+++	+++	+++
9/22/34	+++	+++	+++	+++	+++	+++
9/23/34	+++	+++	+++	+++	+++	+++
9/24/34	+++	+++	+++	+++	+++	+++
9/25/34	+++	+++	+++	+++	+++	+++
9/26/34	++	++	+++	+++	+++	+++
9/27/34	++	++	+++	+++	++	+++
9/28/34	++	++	+++	+++	++	+++
9/29/34	++	+	+++	+++	++	++
9/30/34			+++	+++	++	++
10/ 1 /34			+++	+++	++	++
10/ 2 /34			+++	+++	++	++
10/ 3 /34			+++	+++	++	++
			All Survived	All Survived	Two Survived	Two Survived

The survival of two thirds of all mice inoculated strongly suggests that encephalitis coexisted with the tonsillitis.

anything seemed to be slowly improving. On September 8 temperature rose to 104° rectal and the pulse rose to 120 per minute, respiration to 36. Following this the pulse tended to remain rapid. She became much weaker and refused nourishment. Nasal feeding was resorted to on September 10 and continued daily. Patient lingered, gradually growing weaker until September 23 when she died. The temperature fluctuated widely in this period. In the last forty-eight hours she developed labored respiration and cyanosis.

Patient had no anemia. Myelocytes 2 per cent, Jung Kernige 1 per cent, lymphocytes 19 per cent, N. P. N. 37, blood sugar 126, blood Kahn negative.

Spinal puncture was attempted but because of spinal deformity and the painful decubitus it was unsuccessful.

The autopsy showed diffuse senile arteriosclerosis, myocardial degeneration secondary to sclerosis of the coronary vessels, passive congestion of viscera with terminal bronchopneumonia. Edema and encephalomalacia of brain.

The microscopic sections of the brain are described as follows: "The examination of the brain shows senile and edematous changes. Nothing referable to epidemic encephalitis can be made out. A number of deeply pigmented nerve cells are seen, some large and pale but most of them small, shrunken and deeply staining. Besides edema of the meninges there is a patchy edema of the brain substance with small areas of softening."

Case 13. White male, aged 26.

History.—During encephalitis epidemic patient entered St. Louis City Hospital with acute tonsillitis. Later developed symptoms which led them to suspect coexistence of encephalitis. Entered Firmin Desloge

Hospital September 9, 1934, with acute diarrhea from which he quickly recovered. Serum taken at this time was tested against the encephalitic virus.

Case 14. White female, aged 17. About November 1, 1933, patient began to feel tired, lost interest in studies and was often drowsy. On May 1, 1934, patient had severe headache and slept for three days. Since then has been running slight elevation of temperature, has frequent headaches, tires easily. Has lost interest in studies and usual activities. No definite neurological findings. Occasional rise of temperature to 100° F. Chest plate and tuberculin test negative. Basal metabolic rate minus 9 per cent. Urine negative. N. P. N. 25, blood sugar 80 or 90, Wassermann negative. No anemia. Leukocytes 7900. Differential count: Stab 6 per cent, segment 47 per cent, eosinophiles 2 per cent, basophiles 1 per cent, monocytes 10 per cent, lymphocytes 34 per cent. Spinal fluid clear, normal pressure. Cell count 3. Globulin negative. Colloidal gold 0000000000. Wassermann negative. Culture of blood, stool and urine negative. Agglutination tests for typhoid, undulant fever, tularemia, negative.

The remaining cases are of no great interest. Two were moribund when sent in with a provisional diagnosis of encephalitis. They died in less than five hours and this time was devoted to emergency efforts to revive rather than to diagnostic procedures. One appeared to have pneumonia but no autopsy was obtained. In the other, autopsy showed abscess of the liver with peritonitis and sepsis.

Table 7. *Virus Neutralization Test*

Date of Inoculation	Type of Serum and Virus Dilution				Serum of Patient	
	Normal Human Serum		Convalescent Encephalitic Serum		1/10,000	1/100,000
	1/10,000	1/100,000	1/10,000	1/100,000		
9/20/34			+++	+++	+++	+++
9/21/34	+++	+++	+++	+++	+++	+++
9/22/34	+++	+++	+++	+++	+++	+++
9/23/34	+++	+++	+++	+++	+++	+++
9/24/34	+++	+++	+++	+++	+++	+++
9/25/34	+++	+++	+++	+++	+++	+++
9/26/34	++	++	+++	+++	+++	+++
9/27/34	++	++	+++	+++	++	+++
9/28/34	++	++	+++	+++	++	+++
9/29/34	++	+	+++	+++	++	+++
9/30/34			+++	+++	++	++
			All Survived	All Survived	Two Survived	Two Survived

The survival of two thirds of all mice inoculated suggests that this patient may have had a mild attack of encephalitis.

A case of parametritis with severe menstrual headache, an ulcerative colitis, and a periton-sillar abscess, both with headaches, complete the group.

In review, it would appear that the symptoms physical and laboratory findings of epidemic encephalitis can be closely approximated by a number of infections, particularly malaria, typhoid and tuberculous meningitis. Careful examination of blood smears, blood and stool cultures and careful and repeated study of the spinal fluid is necessary to establish a definite diagnosis. The quantity of the cell count and the sugar in the spinal fluid are of particular importance in the differentiation. It would appear, however, that slight increases in spinal fluid cell counts can appear in malaria and typhoid and perhaps in other acute infections besides encephalitis. The virus neutralization test is a valuable aid in the differential diagnosis of doubtful cases.

Firmin Desloge Hospital.

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TERATOID TUMORS OF THE TESTIS

Archie L. Dean, Jr., New York (*Journal A. M. A.*, Dec. 14, 1935), studied clinically 292 patients with testicular teratomas. Compared with all admissions to the Memorial Hospital between 1917 and 1929, teratoma testis comprised 3.39 per cent of all tumors of the genito-urinary system, 2.09 per cent of all malignant tumors in males, and 1.008 per cent of all malignant tumors in both sexes. The patients varied in ages between 1 year and 70. The average age was 31.87 years when the first symptom was noticed and 33.5 years at the time of admission to the hospital. The right testis was involved in 52.2 per cent and the left testis in 47.6 per cent. This difference could be accounted for by the greater frequency of undescended testes on the right side. A frequency of 14.28 per cent of the tumors was noted in undescended testes, which substantiates the belief that misplaced testes are especially liable to malignant changes. Positive signs of pulmonary tuberculosis were demonstrated in fewer than 10 per cent of all patients. Operations for hernia had been performed on 12 per cent before testicular enlargement was noticed. Primary tumors usually grow steadily and metastasize relatively early through lymphatics and veins. Metastases grow rapidly and spread widely. The average time of survival of 114 patients who died of teratoma was twenty-four months from the onset of the first symptom. The initial symptom of 78 per cent of the patients was a painless swelling of one testis. Symptoms caused by metastases are more clear cut and urgent. Of thirty-nine patients seen within three months of the first symptom, 67 per cent had metastases. Every patient with a testicular swelling should have a thorough examination of the entire body. The Aschheim-Zondek test is of considerable diagnostic and prognostic value. The microscopic picture of radio-sensitive teratomas after irradiation is characterized by

necrosis, hemorrhage and hyaline degeneration, probably followed by cicatrization. Treatment of a primary tumor without metastases consists in irradiation followed by surgical removal from four to six weeks later. This devitalizes the tumor before operation and saves the spermatogenic function of the healthy testis. When metastases are present orchidectomy is seldom performed, and irradiation alone is employed in the treatment of both primary and secondary tumors. In a series of 170 patients with teratomas, 72 per cent of which had metastasized, the five year end results after irradiation show 29 per cent of the men living and free from disease.

IMMUNOTRANSFUSION AND ANTITOXIN THERAPY IN HEMOLYTIC STREPTOCOCCUS INFECTIONS

Champ Lyons, Boston (*J. A. M. A.*, Dec. 14, 1935), considers hemolytic streptococcus infection in terms of septic (bacterial invasion) manifestations and toxic (erythrocytic toxemia) manifestations. He discusses the technic of evaluating antibacterial immunity and the selection of donors with a high grade degree of acquired type-specific antibacterial immunity for purposes of immunotransfusion. He emphasizes, by a few cases, the importance of treating these infections in the light of present immunologic conceptions; that is, to administer antibacterial antibody or antitoxin or both when certain indications are present. Local cellulitis or abscess, lymphangitis, lymph node inflammation and suppuration, swinging "picket fence" temperature, chills and positive blood culture are the signs and make up the symptom complex of septic infection resulting from bacterial proliferation and dissemination within the body. The hemolytic streptococcus owes its invasiveness to its capacity to resist phagocytosis. The essential type-specific antibacterial antibody is an opsonin capable of inciting specific phagocytosis. Recovery from infection has been correlated with the appearance of this antibody. A method has been described which permits the determination of a patient's serum opsonin content and the selection of a donor with a high degree of specific acquired antibacterial immunity. These tests require about four hours after the streptococcus has once been isolated in pure culture. It is proposed to use immunotransfusion to increase the bactericidal power of the body at the time of infection. The toxemia of the early infection is characterized by signs and symptoms that are attributable to the dissemination of the erythrocytic toxin: cutaneous erythema, sustained elevation of the temperature and persistently rapid pulse. Therapeutically potent antitoxins for most cases may be selected by the Schultz-Charlton test of specific blanching. Antitoxin should be expected to be effective only in blanching the rash and lowering the temperature and pulse rate. The clinical course of early, rapidly progressing hemolytic streptococcus infection appears to have been favorably modified by the use of antitoxin for toxemia and immunotransfusion for the passive transfer of antibacterial immunity when necessary. Hemolytic streptococci may persist in local lesions and in lymphatic pathways even though the blood serum contains a high concentration of antibacterial antibody. Immunotransfusion has been found to clear the blood stream of patients with bacteremia for varying periods of time but it has not prevented the later development of abscesses, particularly in the afferent lymphatic channels. Antibacterial therapy appears to halt the general spread of the invading organism and in its perfected form may simplify the problem of streptococcus invasion by making it primarily one of the management of localized areas of infection.

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JANUARY, 1936

EDITORIALS

ANNUAL MEETING OF THE COUNCIL

The annual meeting of the Council convened in St. Louis, November 19, 1935, with fifty-one members and guests present. Dr. A. R. McComas, Sturgeon, Chairman, presided.

Reports were presented by the chairmen of the committees on Scientific Work, Postgraduate Work, Publication, Medical Economics, Mental Health, Maternal Welfare, Medical-Legal Affairs and Study of Constitution and By-Laws. All reports were adopted including a budget presented by the Committee on Auditing and Appropriations for expenditures of the Association during 1936.

The Executive Committee of the Council reported the selection of the dates, April 13, 14 and 15, for the forthcoming Annual Session to be held in Columbia.

The General Committee on Arrangements for the Columbia Session was elected to be composed of Drs. W. L. Allee, Eldon, J. S. Summers, Jefferson City, and A. R. McComas, Sturgeon. Dr. Dudley A. Robnett, Columbia, was appointed Chairman of the Local Committee on Arrangements.

The Council approved several appointments made by the President, Dr. E. Lee Miller, Kansas City. These were Dr. T. S. Fleming, Moberly, Councilor of the 10th District to fill the vacancy created by the death of Dr. C. H. Dixon, Moberly; Dr. C. E. Fallet, DeSoto, Councilor of the 21st District to fill the vacancy created by the death of Dr. N. W. Jarvis, Festus; Dr. Curtis H. Lohr, St. Louis, Councilor of the 20th District to fill the vacancy caused by the resignation of Dr. C. H. Neilson, St. Louis; Dr. Alphonse McMahon and Dr. Neil S. Moore, St. Louis, as additional members of the Committee on Study of the Constitution and By-Laws.

The Chairman appointed the following members as the Committee on Auditing and Appropriations: Drs. W. H. Breuer, St. James;

W. M. West, Monett; and R. B. Denny, Creve Coeur.

Resolutions were adopted approving citizenship as a requisite for licensure to practice medicine in Missouri; approving the Washington, D. C., plan for medical service bureaus in Missouri counties; asking the Council on Medical Education and Hospitals of the American Medical Association to rescind its action regarding two year medical schools.

The contemplated building program of the State Eleemosynary Board and the state work in maternal welfare and crippled children were discussed.

Barton County was transferred from the 16th to the 21st Councilor District.

Addresses were presented by the Rev. Alphonse M. Schwitalla, S. J., Dean, St. Louis University School of Medicine; Dr. Walter L. Bierring, Des Moines, Past President of the American Medical Association, and Dr. J. T. Mason, Portland, President-Elect of the American Medical Association.

MEDICAL ECONOMIC SECURITY ADMINISTRATION FOR COUNTY MEDICAL SOCIETIES

The Medical Economic Security Administration for the St. Louis Medical Society was established in St. Louis in October, 1935, with headquarters at 333 Missouri Theater Building. Because of economic pressure on the medical profession and on the laity a Committee to Study County Medical Plans was appointed as a subsidiary to the Committee on Medical Economics of the Missouri State Medical Association. This subsidiary committee overlapped the St. Louis Medical Society's Medical Economics Board in membership and much of the work was done by that board. It was through the efforts of this group that the Administration was established.

The group made a thorough study of all the plans now in operation in the United States and took into consideration the plans that are in operation in foreign countries. It was this group's unanimous decision that the Washington, D. C., plan, modified to meet the needs of St. Louis, be recommended for adoption to the St. Louis Medical Society. The Medical Economics Board of the St. Louis Medical Society in turn recommended that the St. Louis Medical Society adopt this plan and the Society unanimously adopted it. The St. Louis Dental Society was asked to join and it as well as the St. Louis County Medical Society adopted the plan.

The plan is composed of three bureaus. The first bureau is the Medical-Dental Service Bu-

reau, the second is the Hospital Service Bureau and the third the Central Admitting Bureau. They are united under a coordinating board known as the Medical Economic Security Administration of St. Louis.

The chief function of the Medical-Dental Service Bureau is to arrange payments for medical and dental services by installments after the services have been rendered, (the so-called postpayment plan.)

The Hospital Service Bureau is a prepayment service. Under this arrangement a person pays to the Bureau a certain sum each month which assures him of hospital care for twenty-one days should he fall ill and need hospitalization. Definite details of the Hospital Service have not been completely agreed to by the hospitals in St. Louis but several conferences have been had and plans are in process for the establishment of that Bureau.

The Central Admitting Bureau is established to provide Medical and Dental service to indigent persons. Such persons are sent to a state or city institution or to a private hospital that has facilities for the care of indigents. In Washington, D. C., the Central Admitting Bureau cooperates with the Community Chest and it is hoped that this plan will be established in St. Louis.

If it is found that the patient is employed and can budget his income, he is immediately referred to the Medical-Dental Service Bureau. The physician sends the patient to the Bureau with an estimate of the cost of medical or operating procedure, and probable hospital cost. If the patient is agreeable to paying the cost set then the Bureau accepts him. However, if the physician is not sure that the patient can handle it and wants the Bureau to investigate his social status and his ability to pay the physician so informs the director of the Bureau. The Bureau immediately goes into his assets, his liabilities, how much money he has, what his income is, what his family responsibilities are, and such matters. They may report that the man can only pay a portion of the fee. If this is satisfactory to the physician the patient is then accepted by the Bureau and the medical care is given. If, however, this is not satisfactory to the physician, the patient is not accepted by the Bureau and it is then up to the patient and the doctor to arrange for the payment of the service.

Each Bureau is controlled by a board. The Medical-Dental Service Bureau board is based upon the membership in the various society members of the corporation. The St. Louis Medical Society, having a thousand members, has ten representatives on the board. The St. Louis County Medical Society with one hundred twenty-five members has one member.

The St. Louis Dental Society has six representatives. The officers of the board, a president, two vice presidents and a secretary-treasurer and another member appointed by the president of the board, constitute an executive committee which conducts the affairs of the Bureau. There is a monthly meeting of the board and reports are made to that Bureau.

A Medical-Dental Service Bureau is definitely established and working successfully in St. Louis. The Committee has looked upon St. Louis as only the starting point in the State of Missouri for this project.

It is the Committee's opinion that this is a most inclusive and comprehensive plan and it is certainly a definite answer to state medicine. It is fair to the physicians, it is fair to the hospitals and it is fair to the patient. It is also a liberal education to the public in budgeting for medical care as it has long been taught to budget for other needs.

The Council of the Missouri State Medical Association endorsed the plan at the annual meeting of the Council in St. Louis, November 19, 1935, by passing the following resolution:

Resolved, That it is the consensus of opinion of the Medical Economics Committee of the State Association and its Subsidiary Committee, the Committee on County Medical Society Plans, in joint session, that the plan which is now in operation in St. Louis (patterned after the Washington, D. C., plan) be recommended for adoption to the Council and the State Association as a model plan to be followed in the establishment of similar bureaus in other cities and counties of Missouri, be it further

Resolved, That a state organization be formed to be known as the Medical Economics Security Administration of the State of Missouri to be affiliated with the national organization when so formed.

MENTAL HEALTH IN THE COMMUNITY

In the last hundred years there has been increasing liberalization of attitude toward those unfortunates once deemed crazy. The necessity to chain them in dungeons because they were possessed of evil spirits disappeared. Further enlightenment led to the view that they suffered from disease, in character similar to physical diseases such as pneumonia and smallpox. Treatment was then radically changed. The insane were allowed a measure of freedom within their confining halls. Later, they were permitted cottage life with lessened restraints; sometimes returned to society.

Despite this greater knowledge of the subject every physician today feels growing concern over the increasing number of persons mentally diseased. Some of these persons are valuable members of society who can so far control their

actions as to require no detention. Others have occasional short spells of violence in one or another form and must be detained.

The Committee on Mental Health of the Missouri State Medical Association was established to assist members of the profession in becoming more adept in recognizing early evidence of mental changes. The Committee proposes a campaign of education similar to the campaigns so successfully being waged against tuberculosis and cancer. In all disease processes the earlier the recognition, the earlier the therapeutic and the earlier the cure.

In our schools we find numerous children who present evidence of potential mental disease. Some are frankly problem children. They are the fortunate ones who are referred to psychiatrists, behavior clinics and other agencies for early treatment of their idiosyncrasies. Others who are considered queer by their teachers and by their friends somehow manage to survive in the welter of life's activities. They may get along without serious difficulty because of their indifference to the influence of an unfriendly environment which might lead to a breakdown in others more sensitive to their surroundings.

There is a third group which might be picked from the average school; it is composed of those apparently impeccable individuals who do every task set them, constantly and conscientiously struggle to overcome the slightest fault, shine in the eyes of their teachers, but from their classmates invite the odious term "teacher's pet." Thrown onto an uncaring world where no friendly hand stands by to support and applaud, sometimes overcome by the seeming inconsistencies of that world where virtue so rarely earns its reward, these troubled souls sink into the slough of despondency and become truly recognized as mentally diseased. So long as they can live inviolate in their world of dreams and performances they get along nicely; but when once a lurking ugly fate steps in to upset them they fail.

One might also consider the teaching which the average child receives in his own home. It was the home teaching, perhaps unconscious teaching, which enabled our emigrant forefathers to overcome the unremitting blasts of cruel nature eternally resisting their spread of civilization. That indirect instruction consisted of instilling into the child the ability to survive through his own resources. But more than that, it taught him the community of effort which was necessary to overcome the common enemy. There could be no letting down on the job; there could be no dependence upon others; there could be no shirking the disagreeable; there could be

no escape from the tasks which had to be done. Today, on the other hand, the child is pampered as an infant, coddled as a tiny tot, indulgently smiled upon during his early school life, ignorantly overlooked during his later years and suddenly thrust upon the world to find a job or take the dole. He may have learned his lessons well. He may decline perfectly the most irregular verb, define seeming synonyms accurately, locate the Orinoco River; and yet, his training both at home and at school has failed because it has never taught him to live. He has never learned to make out with what he has, to curb, if one may be permitted the phrase, his "champagne appetite" to the limits of his "beer purse" and inherent ability.

Just so far as the school and the home fail to develop a certain adaptability of character, thought and action, just so far will the adult be potentially subject to mental disease in its various forms. Considered in the broadest sense it may be said that he is unable to cope with the realities of living, that escape must be provided to preserve life itself. As life becomes increasingly complex, as each worker becomes further ground down into a narrow groove of action with increasing mechanization, as competition for jobs becomes keener, as personal frustrations become more frequent, by that much is the probability of mental disease in the individual increased. And so much greater becomes the burden of the medical profession in meeting the challenge of society. In the past the medical profession has never failed to answer this challenge. It has overcome the scourge of some epidemic diseases which wiped out those weak persons who in a later age might have succumbed to the complexity of life. It has developed powerful serums and chemicals with which to combat the ravages of other illnesses. It has in a measure regulated industrial procedure by pointing out the relationship between hours and conditions of work and factory efficiency. In more recent years the medical profession has recognized that certain bodily constitutions predispose to the development of the degenerative diseases of middle life and through diet and physical habit training it has safeguarded a large number of people.

Specialists in the treatment of mental disease have rallied the profession to fight this new enemy; namely, illness in the mind resulting largely from inability to continue meeting the problems of an increasing complexity of life. The general practitioner, the surgeon, the gynecologist, the aurist, the internist, the orthopedist, all these must consider the patient from a new standpoint. Hitherto, these physicians have been concerned with the existence of physical

disease in the individual; now they must ask themselves, do the evidences of disease here present suffice to explain the complaints of the patient? No one doubts that a person with a broken leg is unable to walk. But does a patient who complains of inability to walk without the physical manifestation suffer from an organic disease, or are his complaints merely an early evidence of mental disease? If the latter, the patient must be treated from the standpoint of restoring his ability to continue actively in society. The practitioner must concern himself less with slight aberrations in his patient; more with the success with which the patient reacts to the circumstances of living.

In return the general profession is going to lay upon the mental specialists a powerful invocation to treat no organically ill person for a mind diseased. This new order will call for close cooperation between the internist skilled in the physical evaluation of the human body and the psychiatrist skilled in understanding the intricacies of the mind. There must not be too easy assumption that because organic disease does not thrust its ugly head brazenly to the fore the patient therefore suffers from a psychosis or a neurosis.

The Committee on Mental Health of the Missouri State Medical Association is prepared to help in the eradication of this new nonepidemic scourge through a process of education. It is prepared to meet the practitioner on his own ground. It is anxious to provide trained speakers at his regular county society meetings to acquaint him with the earliest manifestations of mental disease, to suggest methods of treatment, to advise with him over persons needing more expert care than may be locally available. The support of school teachers and civic-minded citizens in this vitally important movement directed to the maintenance of the individual in society may be enlisted at an open meeting addressed by the visiting specialist. No need to point out here the tremendous tax burden entailed by institutional care. No need to mention that there are more hospital beds for those suffering from mental disease than for those suffering from all other illnesses. No need to call attention to the crying need for more facilities, more hospital beds to take care of the increasing number of the mentally ill. No need even to refer to the anguish caused the sick individual as he realizes his inability to keep up in the struggle for existence.

It is to be hoped that a broader realization of the meaning of the problem of mental health by all community agencies under the leadership of an alert medical profession will once more meet the challenge thrown out by society to its medi-

cal counsellors. It is to be hoped that each individual in the community can be taught the larger meaning of equanimity.

County societies desiring to have speakers on mental health address their meetings are invited to notify the secretary of the Association, 623 Missouri Building, St. Louis, and arrangements will be made.

NEWS NOTES

Dr. J. Curtis Lyter, St. Louis, was a guest of the Randolph County (Illinois) Medical Society at Chester, Illinois, November 14, and delivered an address on "Chronic Infections of the Liver, Bile Ducts and Gallbladder."

Dr. William W. Graves, St. Louis, discussed "The Relations of Inherited Variations of Structure to Inherited Capacities for Education" before a meeting of the Academy of Science of St. Louis, December 11.

Dr. Walter Freeman, Washington, D. C., was a guest of the Jackson County Medical Society at Kansas City on November 19. More than a hundred fifty attended the dinner meeting. Dr. Freeman delivered an address on "The Endocrine Glands and Personality."

Dr. T. W. Adair, Archie, was honored by the Cass County Medical Society upon the completion of his fiftieth year in practice at a meeting December 12. Dr. M. P. Overholser, Harrisonville, was the first of several of Dr. Adair's colleagues to give short addresses in his honor.

The seventh annual meeting of the Medical Association of the Missouri Pacific Railroad will be held in Omaha, Nebraska, January 31 and February 1, 1936. Dr. A. H. Hamel, St. Louis, is president of the organization and Dr. J. A. Lembeck, St. Louis, is secretary.

Dr. Clifford T. Ekelund, Pontiac, Michigan, has become secretary of the Michigan State Medical Society and Mr. William J. Burns, formerly secretary of the Wayne County Medical Society, Detroit, is executive secretary. The business offices have been transferred from Grand Rapids to Lansing. Dr. Clifford T. Ekelund succeeds Dr. F. C. Warnshuis who was for many years secretary of the Michigan State Medical Society and editor of its journal and until recently speaker of the House of Dele-

gates of the American Medical Association but is now secretary of the California Medical Association.

The Texas State Medical Association has purchased a two-story brick residence at 1404 El Paso Street, Fort Worth, as headquarters for the Association and its library. The building is well located and the interior so arranged that no remodeling will be necessary. A large garage will furnish ample storage space.

The American Association for the Study of Goiter is again offering the Van Meter Prize Award of \$300 and two honorable mentions for the best essays submitted on goiter. This award will be made at the discretion of the society at its next annual meeting to be held in Chicago, June 8, 9 and 10. The competing manuscripts, which should not exceed 3000 words, must be presented in English and a typewritten double spaced copy sent to the corresponding secretary, Dr. W. Blair Mosser, 133 Biddle Street, Kane, Pennsylvania, not later than March 1, 1936. Manuscripts received after that date will be held for competition the next year or returned at the author's request.

The Scientific Exhibit at the Kansas City Session of the American Medical Association will be held in the Municipal Auditorium in conjunction with the other activities of the Association, May 11 to 15, 1936. The exhibit will cover a wide variety of subjects including the basic medical sciences as well as the various specialties in medicine. The various sections of the Scientific Assembly have appointed section representatives who will correlate the section exhibits, as far as possible, with the papers read at the section sessions. All applicants for space in the Scientific Exhibit must fill out the regular application blank. Applications for the Exhibit close on January 27 and assignments of space will be made about February 24. Further information and blanks may be obtained from Thomas G. Hull, Director, Scientific Exhibit, American Medical Association, Chicago.

The Missouri State Board of Health has appointed an advisory committee to assist in planning and carrying out the provisions of the Social Security Act relating to public health in Missouri. The committee consists of Dr. E. Lee Miller, Kansas City, President, Missouri State Medical Association; Dr. R. H. Miller, St. Louis, representing the State Dental Association; Miss Grace Frauens, Kansas City, representing the State Nurses' Association; Dr.

Dudley S. Conley, Columbia, Dean, University of Missouri School of Medicine; Father Alphonse M. Schwitalla, S. J., Dean, St. Louis University School of Medicine; Dr. W. McKim Marriott, St. Louis, Dean, Washington University School of Medicine; Mr. J. W. Becker, St. Louis, secretary, Missouri Tuberculosis Association; Dr. J. F. Bredeck, St. Louis, representing the State Public Health Association; Dr. Frank C. Neff, Kansas City, representing the American Pediatric Society, and Dr. Ralph R. Wilson, Kansas City, Chairman, Committee on Maternal Welfare, Missouri State Medical Association.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

The Calco Chemical Co., Inc.

Tablets Methenamine-Calco, 5 grains

Cutter Laboratories

Diphtheria Toxin for the Schick Test, Diluted Ready for Use

Diphtheria Toxin-Antitoxin Mixture 0.1 L+ (Goat) ten 3 cc. vials package

Typhoid-Paratyphoid Prophylactic, 10 vials package

Lederle Laboratories, Inc.

Gas Gangrene Antitoxin (Polyvalent) Without Tetanus Antitoxin, "Globulin-Lederle-Modified"

Tetanus Gas Gangrene Antitoxin, "Globulin-Lederle-Modified"

Parke, Davis & Co.

Gas-Gangrene Antitoxin (Combined) Refined and Concentrated—P. D. & Co.

Harper & Brothers, New York, have announced that they have acquired the medical book publishing business of Paul B. Hoeber, Inc., New York. A program of expansion is planned and medical books will be published under the imprint of Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers. Mr. Paul B. Hoeber, the founder, remains in charge of this department. Paul B. Hoeber, Inc., was established in 1901 as a medical book store. The first book published under the Hoeber imprint was Ehrlich's "Specific Therapeutics" which appeared in 1909. Since that time the company has pioneered in the publication of authoritative medical books which have been noteworthy also for their fine manufacture. The firm is well known for its series of medical monographs which include works by Francis R. Packard, Hugh H. Young, David

Riesman, Sir Humphry Rolleston, Frederick Tilney, Charles A. Elsberg and other authorities. It has specialized in medical history and in 1917 established the *Annals of Medical History*, internationally known as the outstanding publication of its kind. Among the eminent books which have appeared under the Hoeber imprint are "The Brain from Ape to Man" by Frederick Tilney, "Nervous Indigestion" by Walter C. Alvarez, "Pediatrics of the Past" by John Rurah, and the "Annals of Roentgenology" of which sixteen volumes have been published. Harper & Brothers are to be congratulated that they have acquired the Paul B. Hoeber, Inc., and the medical profession will be happy to know that Mr. Hoeber will continue to give the benefits of his remarkable talents in producing medical works of merit.

OBITUARY

JAMES W. HORNER, M.D.

Dr. James W. Horner, Alma, a graduate of the Jefferson Medical College, Philadelphia, 1877, died at his home, March 15, 1935, being nearly 85 years of age. Soon after his graduation he located at Alma where he practiced until his death. He had served that community as a physician for fifty-three years.

Dr. Horner practiced medicine the hard way. He lived in a community with no improved roads but the roads were never too rough or muddy nor the nights too severe to keep him from responding to a call. He served all regardless of creed or color, rich or poor. He answered every demand made upon his skill and knowledge. He was devoted to the practice of medicine and throughout the years maintained a vigorous and inquiring mind. He strove constantly to keep abreast of the times. His later years found him an active and regularly attending member of the Lafayette County Medical Society of which he was president in 1923. In spite of his prolonged illness he attended forty monthly meetings in his last five years of life.

He possessed two dominant traits of character, cheerfulness and eternal youthfulness. Wherever he went his cheer created faith and hope in all with whom he came in touch. He ever maintained a close contact with the youth and children of the community, enjoying their games and sports as well as encouraging their hopes and their ambitions. This not only made him a host of friends but kept alive his youthful mind and spirit.

Dr. Horner is survived by his wife, Mrs. Suzy Horner, two sons and one daughter.

W. A. BRAECKLEIN, M.D.
J. DEVOINE GUYOT, M.D.
W. E. KOPPENBRINK, M.D.

CHARLES H. DIXON, M.D.

Dr. Charles H. Dixon, Moberly, a graduate of the Beaumont Hospital Medical College, St. Louis, 1899, died November 8 from injuries received in an automobile accident. He was 66 years old.

Dr. Dixon was born in Kentucky. He moved with his family to Dewitt County, Illinois, and then to Mon-

roe County, Missouri, in 1874. He attended the Monroe County schools as a youth and the Fort Scott Normal School at Fort Scott, Kansas, and Christian College at Ash Grove, Kansas. Before beginning his study of medicine he was in the drug business at Paris.

Immediately after completing his medical course he located at Holiday where he practiced for fifteen years during which time he served several years as coroner of Monroe County. In 1914 he moved to Fulton and two years later moved to Moberly where he remained in active practice. Dr. Dixon was active in professional, civic, political and church affairs. He served the Randolph-Monroe County Medical Society as secretary-treasurer from 1921 to 1925 and from 1927 to 1929. He was delegate to the Annual Sessions from 1930 to 1933 and was alternate delegate in 1934. At the time of his death he was a member of the Democratic City committee and an employee of the Missouri Pure Food and Drug Department. He served as coroner of Randolph County for one term. He was a charter member of the Moberly Kiwanis Club and until about a year ago was chairman of the underprivileged child committee. He was a member of the Central Christian Church and taught a boys' Sunday School class throughout the nineteen years of his residence in Moberly. He was a member of the Masonic Order A. F. and A. M. 344.

Dr. Dixon is survived by one son, one daughter, three brothers and two sisters.

CLYDE M. BALSLEY, M.D.

Dr. Clyde M. Balsley, Joplin, a graduate of the University of Louisville School of Medicine, 1915, died of a heart attack in his office November 12, aged 46.

Dr. Balsley was a son of the late Dr. M. T. Balsley who was a prominent physician and surgeon in Joplin for many years. The father and son practiced together for several years.

Dr. Balsley attended the elementary schools in Joplin, then Washington University and the University of Missouri before beginning his study of medicine.

When out of medical college only five years he helped organize the staff at St. John's Hospital and served on it thereafter. He was a charter member of the staff of the Freeman Hospital and was chief of staff there at the time of his death.

He is survived by his widow, Mrs. Mabel Balsley, one son, one daughter, his mother and three sisters.

The Jasper County Medical Society adopted the following resolutions:

WHEREAS, The members of the Jasper County Medical Society realize with sadness the death of Dr. Clyde M. Balsley on November 12, 1935, and

WHEREAS, Those who knew of his illness must realize that without complaint or thought of himself he forged ahead doing his utmost to fulfill the pledge of his profession toward those who came to him for his care and attentions. His sunny disposition and innate optimism were always an inspiration to those within the profession as well as others who came in contact with him, and

WHEREAS, The members of the profession not only in our Society but of the entire surrounding territory have lost a valued member and friend whose place will be hard to fill and whose influence will continue to live for many years in spite of his absence, therefore be it

Resolved, That the members of the Jasper County Medical Society wish to express their profound feelings of sadness and regret at the untimely passage of a respected and revered member from their number. It is almost impossible to realize the sad fact of death of one who enjoyed living so much and gave so much of himself to allay suffering and preserve the pleasure of living for others, and be it further

Resolved, That a copy of this resolution be spread upon the minutes of the Society and also that a copy be sent to his family.

PAUL W. WALKER, M.D.
ROY E. MYERS, M.D.
W. H. MALLORY, M.D.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1936

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 19, 1935.

symptoms, treatment and the final results. His interesting and exhaustive treatment of the subject was well received. The paper was discussed by Drs. H. E. Peterson, A. H. Kelley, Jacob Kulowski, Earl Whitsell, J. M. Hughes, L. H. Fuson, H. DeLamater, St. Joseph; Dr. J. M. Hale, Dearborn, and closed by Dr. Freund.

The report of the committee on state medicine regarding the payment for services for Transient Bureau patients was read.

A letter from Dr. W. Roger Moore acknowledging the flowers sent by the Society at the death of his wife was read.

The application of Dr. E. E. Wadlow for active membership was presented.

EARL WHITSELL, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met in the Chamber of Commerce Rooms, Cape Girardeau, November 11, with Dr. D. I. L. Seabaugh, Jackson, president, in the chair. Members present were Drs. Sylvester Doggett, J. H. Cochran, G. Tygett, M. H. Shelby, D. Elrod, O. L. Seabaugh, Carl Zimmermann, Cape Girardeau; W. W. Ford, Gordonville, and D. I. L. Seabaugh, Jackson.

The question of extending an invitation to the Missouri State Medical Association to Cape Girardeau for its meeting in 1937 was discussed. The entire membership was greatly interested and the secretary was instructed to ask Mr. E. H. Bartelsmeyer, Assistant Secretary of the Association, to come to Cape Girardeau and discuss details with the committee.

Dr. J. H. Cochran, Cape Girardeau, called attention to the prospective social evening in December and requested an allowance of money for his committee.

Dr. W. W. Ford, Gordonville, read a paper on "The Diagnosis and Treatment of Typhoid Fever." Every member contributed to the discussion of this worthy paper.

CARL A. W. ZIMMERMANN, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met November 5 with fifteen members present.

A paid advertisement in the Jasper County *News* was read in which Dr. Stark of Jasper stated that he had paid his debt to society which they thought he owed; that he had no intention of leaving Jasper, and, that he wanted to state to his many friends that he would be back in the practice of medicine in a short time.

Applications of Dr. Mervin H. Black and Dr. Virgil Jeans were presented. Both men were voted into the Society.

Dr. S. A. Grantham, Jr., Joplin, reported two burn cases. The first was a woman 76 years old having extensive third degree burns as the result of a kerosene explosion. She was brought to the hospital and died in a few hours. The second patient was a foundry worker who received burns around his left ankle as a result of molten metal falling into his shoe. Dr. Grantham explained his treatment of this burn with tannic acid and later skin grafting, discussing the importance of careful treatment of burns around joints. These cases were discussed freely.

Dr. O. T. Blanke, Joplin, read a paper on "Tularemia" and presented a case as illustration. The paper was well received.

ADAIR-SCHUYLER COUNTY MEDICAL SOCIETY

The Adair-Schuyler County Medical Society met in Dr. Spencer Freeman's office, Kirksville, November 7. Members of the staff of the Grim-Smith Hospital presented the program.

Dr. Spencer Freeman, Kirksville, spoke on "Serum and Vaccine in Pneumonia."

A mine accident case with fracture of the pelvis and destruction of one half inch of the urethra by spicula of the pubic bone was reported by Dr. George Grim, Kirksville.

Three unusual cases in obstetrics were reported by Dr. J. J. Wimp.

Dr. Ida Nulton, Lancaster, reported on her experience with vaccine.

The various papers were discussed freely.

The application for membership of Dr. J. J. Wimp was read and referred to the board of censors.

A communication for Dr. Ellis Fischel, St. Louis, Chairman of the Committee on Cancer of the State Association, in regard to a cancer clinic was discussed.

The wishes of the ethical practitioners of Sullivan County to join with the Adair-Schuyler County Medical Society were discussed.

J. S. GASHWILER, M.D., Secretary.

BATES COUNTY MEDICAL SOCIETY

The Bates County Medical Society met in Butler, November 12.

The following officers were elected for the coming year: President, Dr. Chas. A. Lusk, Sr., Butler; secretary-treasurer, Dr. A. Graham Wooldridge, Butler; delegate, Dr. Rollin H. Smith, Rich Hill, and alternate delegate, Dr. George A. Delamater, Butler.

R. H. SMITH, M.D., Secretary.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society met at the Missouri Methodist Hospital on November 6 with thirty members present. Drs. J. M. Hale and M. H. Moore, Dearborn, were guests.

Mr. H. L. King, St. Joseph, director of the Community Chest, was granted the privilege of the floor for five minutes and spoke on the coming Community Chest drive.

Dr. Samuel J. Freund, St. Joseph, read a paper on "Diagnosis and Treatment of Meningitis." He reported an interesting series of twelve cases with diagnosis,

Meeting of November 12

The Society convened with sixteen members present.

A letter from the State Medical Association regarding broadcasting medical subjects was referred to the committee on broadcasting.

Dr. U. J. Busiek, Springfield, presented a paper on "Some Experiences with Pyloric Stenosis," in which he stressed the diagnosis and treatment, especially the operative treatment and the preoperative care. The paper was discussed by Drs. A. M. Gregg, J. W. Barson, Virgil Jeans and J. W. Hardy, Joplin.

Dr. J. D. James, Joplin, presented a paper on "Difficult Obstetrical Positions and Presentations." He stressed the importance of actual diagnosis before any treatment is instituted. His paper was discussed by Drs. H. L. Wilbur, A. M. Gregg, M. O. Coombs and R. M. James, Joplin.

Both papers were well received.

Meeting of November 19

Dr. J. L. Sims, Joplin, vice president, called the meeting to order; twelve members were present.

Dr. W. M. Kinney, Joplin, and Dr. J. E. Douglass, Webb City, presented a paper on "Symptomatology of Silicosis." The paper was discussed by Drs. O. T. Blanke, S. A. Grantham, Jr., R. L. Neff, J. W. Barson and J. L. Sims, Joplin.

Meeting of November 26

The Society was called to order with sixteen members present.

Dr. R. M. James, Joplin, reported on a meeting he had attended in St. Louis where there had been considerable discussion on the Medical-Dental Bureau as an aid to the doctor.

A committee consisting of Drs. R. E. Myers, R. M. James and A. M. Gregg, Joplin, presented their tribute to Dr. A. B. Clark which was read and adopted.

A card of appreciation from the family of Dr. C. M. Balsley was read.

Dr. W. S. Loveland, Joplin, appointed the following committee to draw up resolutions on the death of Dr. Balsley: Drs. R. E. Myers, W. H. Mallory and Paul Walker, Joplin.

A film, "Modern Methods of Anesthesia," furnished by the Winthrop Chemical Company was shown.

Meeting of December 3

The Society was called to order by the president, Dr. W. S. Loveland, Joplin, with twenty-seven members present.

A committee composed of Drs. Paul Walker, R. E. Myers and W. H. Mallory, Joplin, presented a tribute to Dr. C. M. Balsley. The report of the committee was adopted.

The following officers were elected to serve during 1936: President, Dr. O. T. Blanke, Joplin; vice president, Dr. Paul Walker, Joplin; secretary, Dr. J. W. Hardy, Joplin; treasurer, Dr. H. D. McGaughey, Joplin; censor for 1936-37-38, Dr. Leroy Baxter, Joplin; delegates, Dr. Lloyd B. Clinton, Carthage, and Dr. L. C. Chenoweth, Joplin; alternates, Dr. Ed. James, Joplin, and Dr. B. E. DeTar, Joplin.

J. W. HARDY, M.D., Secretary.

JEFFERSON COUNTY MEDICAL SOCIETY

The Jefferson County Medical Society met at the Crystal City Hospital, Dr. John F. Rutledge, Crystal City, presiding.

The following resolution was presented by the secretary and adopted by the Society:

WHEREAS, The members of the Jefferson County Medical Society feel keenly the loss of one of their most loyal members, Dr. Norvel W. Jarvis, and

WHEREAS, By his untimely death the Society lost a diligent member and the public lost a true benefactor, therefore be it

Resolved, That it is with deepest grief we mourn the loss of a fellow physician of such high ideals, steadfastness of purpose, loyalty and consideration for his fellow man; that we cherish the memory of Dr. Jarvis in full realization that we have been honored by association with him; be it further

Resolved, That these resolutions be spread upon the minutes of the Society and that the secretary be instructed to send a copy to the bereaved family together with an expression of our deepest sympathy.

Dr. J. P. Costello, St. Louis, discussed "Pneumonia in Children."

Dr. J. A. Rossen, St. Louis, spoke on "Lung Conditions Resulting from Upper Respiratory Infections."

The talks were timely, well presented and greatly enjoyed.

CHARLES E. FALLET, M.D., Secretary.

NODAWAY COUNTY MEDICAL SOCIETY

The Nodaway County Medical Society met November 6 at the St. Francis Hospital, Maryville. The meeting was called to order by the president, Dr. C. D. Humbert, Barnard, with the following members present: Drs. C. W. Kirk, Hopkins; B. F. Byland, Burlington Junction; Hiram Day, L. E. Dean, C. V. Martin, Jack Rowlette, W. M. Wallis and W. R. Jackson, Maryville. Guests were Drs. C. C. Conover, E. R. Deweese and D. A. Williams, Kansas City; Dr. M. A. Mulvania, Fairfax; Dr. F. R. Anthony, Maryville; Lieut. Stoffer, physician at the CCC camp at Maryville; Drs. Earl Braniger, H. L. Stinson and Jessie Miller, dentists, and several sisters from the hospital.

Dr. L. E. Dean, Maryville, chairman of the committee on milk, reported on the committee's progress. A motion to accept the report and continue the committee was made by Dr. C. V. Martin, seconded by Dr. W. M. Wallis, and carried.

Dr. D. A. Williams, Kansas City, gave an interesting talk on the "Pathology and Treatment of Diseases of the Colon." Dr. C. C. Conover, Kansas City, gave an interesting discussion of "The Etiology of Diseases of the Colon." Dr. E. R. Deweese, Kansas City, presented roentgen ray slides and diagrammatic drawings giving interesting illustrations of the lectures.

W. R. JACKSON, M.D., Secretary.

PETTIS COUNTY MEDICAL SOCIETY

The Pettis County Medical Society, in conjunction with the Committee on Cancer of the State Association, sponsored a Cancer Day Program in Sedalia on November 14. The following program was presented:

10:00 a.m. Clinic, Bothwell Hospital.

3:00 p.m. Public meeting, Court House.

"Causes of Cancer," Dr. Ferdinand C. Helwig, Kansas City.

"Prevention of Cancer of the Mouth," Dr. Kip Robinson, Kansas City.

"Cancer Control," Dr. David S. Dann, Kansas City.

6:30 p.m. Dinner and scientific session, Country Club. "Reactions of Tumors to Radiation," Dr. Helwig.

"Treatment of Metastatic Glands in Neck," Dr. Robinson.

"Management of Cancer of the Lip," Dr. Dann.

The meetings were well attended and considerably more interest was manifested by the general public this year than at a similar program last year.

Meeting of November 18

The Society met at the Bothwell Hospital on November 18. An excellent dinner was served the members and guests by the Hospital. Twenty-one members were present.

The Society unanimously elected Dr. A. L. Pollard, Sedalia, 81 years old, to honor membership.

Dr. Eugene P. Hamilton, Kansas City, was the guest speaker and presented an interesting and instructive paper on "The Diagnosis of Acute Perforations of the Abdominal Viscera." This paper provoked an interesting discussion and was enthusiastically received by the members.

GORDON STAUFFACHER, M.D., Secretary.

RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met October 8 in the Public Library Building, Moberly. The meeting was called to order by the president, Dr. C. C. Smith, Moberly.

Dr. John Maddox, Moberly, read a paper on "The Relation of Ovarian Hormone to Hemophilia." This interesting paper was discussed by those present.

The following members were present: Drs. L. O. Nickell, Jesse Maddox, John Maddox, C. C. Smith, L. E. Huber, F. L. McCormick, T. S. Fleming and M. E. Kaiser, Moberly.

Meeting of November 12

The Society met November 12 in the Public Library Building, Moberly. The meeting was called to order by the president, Dr. C. C. Smith, Moberly.

The application of Dr. G. G. Bragg, Huntsville, was presented to be voted on at the next regular meeting.

A committee consisting of Drs. T. S. Fleming, L. O. Nickell and F. L. McCormick, Moberly, was appointed to draw up resolutions on the death of Dr. C. H. Dixon.

Dr. G. B. Bowers, Moberly, presented a paper on "Food Allergy." A general discussion followed.

The following guests and members were present: Drs. J. F. Flynt and M. C. McMurphy, Paris; J. P. Allen, Cairo; G. B. Bowers, C. C. Smith, L. O. Nickell, F. L. McCormick, L. E. Huber and M. E. Kaiser, Moberly.

M. E. KAISER, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

14th Annual Meeting, Kansas City, 1936

President, Mrs. Rogers N. Herbert, Nashville, Tennessee.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

12th Annual Meeting, Columbia, 1936

President, Mrs. M. Pinson Neal, Columbia.
President-Elect, Mrs. Walter Kirchner, St. Louis.
Advisor, Dr. J. F. Harrison, Mexico.

The Woman's Auxiliary to the Missouri State Medical Association has suffered a real loss in the deaths of two of the most active and loyal members, Mrs. Floyd Spencer, St. Joseph, and Mrs. Robert McEwen Schauffler, Kansas City.

Mrs. Spencer was the wife of Dr. Floyd H. Spencer and had resided in St. Joseph for twenty years. She served as president of the Woman's Auxiliary to the Buchanan County Medical Society in 1927 and was a past chairman of the public relations department of the State Auxiliary. Mrs. Spencer was an active member of several clubs and organizations. She was interested in her flower garden which was one of the most beautiful in St. Joseph. Pictures of it appeared in a national magazine. Mrs. Spencer's death followed a prolonged illness.

Mrs. Schauffler was the wife of Dr. Robert McEwen Schauffler, Kansas City, and served as the first president of the Jackson County Auxiliary. Mrs. Schauffler had long been interested in the drama and had written "Peep Show" which was produced in London. She was in New York City superintending rehearsals for her second play when she died. In the *Kansas City Journal Post* of November 10, Mr. Lowell Lawrence says:

"At the Ethel Barrymore Theater in New York Monday night a play will open on which the thoughts of hundreds of Kansas Citians will center. It is 'Parnell,' historical drama written by the Kansas City playwright. Mrs. Schauffler died October 24, taken unexpectedly at the time she stood on the threshold of fame. It seems likely that 'Parnell' will be a hit. Noel Coward, John Van Druten and Catherine Cornell are enthused about it. No drama any playwright could write, however, is more poignant than the career of this gracious Kansas City housewife who taught herself the art of writing, won a well-merited Broadway production and then could not live to answer the curtain call for 'author' the first night."

Mrs. Joseph M. Trigg, St. Louis, president of the Woman's Auxiliary to the St. Louis Medical Society, was elected second vice-president of the Woman's Auxiliary to the Southern Medical Association at its recent meeting in St. Louis.

"As we enter the new year, let us bear in mind the significant part that each Auxiliary member plays in forwarding our great health work, and let us remember that it is only through the closest cooperation and constancy to purpose that we can hope to achieve any measure of success."—MRS. ROGERS N. HERBERT, president of the Woman's Auxiliary to the American Medical Association.

MISCELLANY

LADIES AND GENTLEMEN: YOUR HEALTH

January Radio Programs by the American Medical Association

January 7. "Winter Ills." Speaker, Dr. Morris Fishbein. Freezing, chilblains, snow-blindness, accidents on the ice, skiing mishaps. What to do in the emergency.

January 14. "Diphtheria." Speaker, Dr. W. W. Bauer. Diphtheria in 1890; the discovery of antitoxin, the Schick test, safe and sure prevention, stopping an epidemic. The parent's part in disease prevention.

January 21. "Scarlet Fever." Speaker, Dr. Morris Fishbein. A tricky disease, discovery of the cause, the Dick test, human volunteers in preventive medical research, toxins and antitoxins. The doctor has new weapons against scarlet fever.

January 28. "Health of the Traveler." Speaker, Dr.

W. W. Bauer. Changes in habits, diet and climate; hazards in water, foods and human contacts; prevention of disease by vaccinations and other precautions. A vacation should enhance health, not ruin it.

Each Tuesday afternoon at 4 p. m. on a coast-to-coast network of the National Broadcasting Company and on the short waves these programs will be presented.

BOOK REVIEWS

LIVING ALONG WITH HEART DISEASE. By Louis Levin, M.D., Cardiologist to the St. Francis Hospital and New Jersey State Prison Hospital, Trenton, N. J.; formerly Consulting Cardiologist to the New Jersey State Hospital at Trenton; and Assistant Physician, Cardiac Clinic, Pennsylvania Hospital, Philadelphia. With a Foreword by Thomas M. McMillan, M.D., Associate Professor of Cardiology, Graduate School of Medicine, University of Pennsylvania, New York. The Macmillan Company. 1935. Price \$1.50.

The author hopes that by interviews with his patients, and by giving them this text to read, an ordinary physician may instill sufficient optimism into the minds of his cardiac patients to make life more endurable and contentment possible. In this book, therefore, Dr. Levin seeks to give the fundamental facts for such a mental reaction. He tries to explain the nature of cardiac disease, its probable outcome and the necessity for restricted activity.

Before asking his patients to read this, your reviewer would recommend that the doctor trying to use this material should first read the book himself and then see if it applies to his locality and his clientele. The only question about the value of the book is whether or not it will appeal to the ordinary layman in such a way as to make him understand what it is all about.

On the other hand, the book is a good one for practitioners of medicine to read because it may lead them to think out more clearly their own attitude toward heart disease.

G. H. H.

THE DOCTOR AND THE PUBLIC. A Study of the Sociology, Economics, Ethics, and Philosophy of Medicine, Based on Medical History. By James Peter Warbasse, M.D., Author of "Surgical Treatment," "The Conquest of Disease," "Medical Sociology," "Cooperative Democracy," etc. Illustrated. New York: Paul B. Hoeber, Inc. 1935. Price \$5.00.

For the most part this book is a popularized outline of the history of medicine in its relation to the general hygienic problems and the control of bodily disease. The interpolated personal reflections of the author are very instructive and replete with his accumulated wisdom. It contains quite enough information for the intelligence of the average physician health officer, but probably too much for most social workers, nurses, hospital executives and other nonmedical persons. There are many direct statements on well established important medical facts which are not generally known by the public and seldom seen in print. Even the best educated physician will find considerable therein which he has either long forgotten or never knew.

The volume was clearly not intended as a reference work or the index would be more inclusive. Furthermore, there are enough inaccuracies, most of which were evidently taken from those short English and American medico-historical treatises mentioned in the list of references. This is particularly true of the sev-

eral pages devoted to Paracelsus. Johann Peter Frank, that great pioneer in public hygiene, has apparently been altogether overlooked. All that however ought not disturb the ordinary reader who is sure to skim over this sort of material in a hasty fashion and find a superabundance of valuable information to suit his every purpose.

As the smooth intelligible narrative of Dr. Warbasse glides through the medical problems of the past into those of the bewildered profession of the present day it becomes increasingly interesting, edifying and instructive. His erudite presentation of the various professional, economical and social phases of medical life, before which many a twentieth century doctor might find himself surprised and unprepared, deserves a careful study by every physician and especially by those who are trying to establish a firmer commercial basis for the practice of medicine.

As he approaches the end of his text of 553 pages this trained sociological writer, tutored in the school of experience, attains the utmost height of brilliance in his concluding paragraphs which contain many well merited admonitions and much useful advice.

The knowledge contained between the two paste-board covers of this book is a necessary mental equipment for every progressive English-speaking physician.

R. E. S.

DISEASES OF THE LIVER, GALL BLADDER, DUCTS AND PANCREAS. Their Diagnosis and Treatment. By Samuel Weiss, M.D., F.A.C.P., Clinical Professor of Gastroenterology, N. Y. Polyclinic Medical School and Hospital; Attending Gastroenterologist, Jewish Memorial and Beth David Hospitals, N. Y., Consulting Gastroenterologist, Long Beach Hospital, L. I., etc. Chapter on Surgery by J. Prescott Grant, M.D., F.A.C.S., M.R.C.S., Professor of Surgery, N. Y. Polyclinic Medical School and Hospital, etc. Chapter on Roentgenology by A. Judson Quimby, M.D., F.A.C.R., Professor of Roentgenology, N. Y. Polyclinic Medical School and Hospital, etc. 358 illustrations and six colored plates. New York: Paul B. Hoeber, Inc. 1935. Price \$10.00.

This volume intended primarily for medical students and general practitioners covers the field very well.

The first chapter gives a very excellent history of biliary tract disease. Beginning with Galen 131-201 A. D.) the author traces the metamorphosis of ideas regarding the anatomy, physiology, pathology and treatment of the biliary tract down to the present day conception. The subject matter deals mostly with the clinical side though the fundamentals of anatomy, pathology and physiology are not slighted. Diagnosis is stressed and rational treatment outlined after each condition is discussed. The various functional tests are given and many tests which can be carried out without elaborate laboratory equipment are described.

The chapter on roentgenology by Quimby is short but covers the subject very well. The chapter on surgery by Grant takes up the various standardized methods of dealing with the biliary tract surgically and the description and illustrations are very clear and concise. A review of this book would be incomplete if mention were not made of the very excellent bibliography. It is arranged so that references are given for each chapter; there is also an alphabetical list of authors who are quoted.

The author gathers in one volume subject matter which has heretofore been scattered; he has written it in a style that is easy to read, and I would recommend

it to the specialist as well as to the general practitioner as a ready reference book. J. L. M.

PHYSICAL DIAGNOSIS. By Warren P. Elmer, B.S., M.D., Associate Professor of Clinical Medicine, Washington University School of Medicine, et al., and W. D. Rose, M.D., Late Associate Professor of Medicine in the University of Arkansas, Little Rock, Arkansas. Seventh edition. St. Louis: The C. V. Mosby Company. 1935. Price \$8.00.

The seventh edition of "Physical Diagnosis," by Warren P. Elmer and W. D. Rose, published by the C. V. Mosby Company, St. Louis, continues the high standards set by former editions. The general plan of the text has not been changed but certain sections have been rewritten and improved.

The space devoted to the anatomical and physiological factors involved in the production of physical findings places the study of physical diagnosis on a sound scientific basis.

The text contains many valuable illustrations. The extensive use of roentgen ray plates and the excellent chapter on electrocardiography make the text a valuable one not only for medical students but for practitioners of medicine as well. G. O. B.

DOCTORS AND JURIES. The Essentials of Medical Jurisprudence. By Humphreys Springstun, of the Detroit Bar. Philadelphia: P. Blakiston's Son & Co., Inc. 1935. Price \$2.00.

This is a well assembled treatise on a very important subject with which most doctors are little acquainted. The arrangement and compactness of this subject is so well done that it is not only good reading matter but is a handy reference. E. C. F.

ALCOHOL AND ANAESTHESIA. By W. Burrig, D.M., M.A. (Oxon), Professor of Physiology, Lucknow University. London: Williams & Norgate, Ltd.

Unbiased and utterly new are the ideas presented by Professor Burrig. Alcohol, first considered a pure stimulant, then a powerful depressant, now is shown to be both a stimulant and a depressant at one and the same time.

The colloidal aggregation change and adsorption phenomena of nerve and muscle tissue are utilized as the basis for discussion and explanation, alcohol decreasing the energy from the adsorption phenomena (kinesiphore A) and increasing the energy from the colloidal aggregation (kinesiphore B).

A newer and better conception of the organ of mind and its functioning is included. The source of data for any idea is credited to kinesiphore B; the capacity to judge to kinesiphore A. The more energy derived from B, the less from A, and vice versa, there being naturally a limit to the energy power available. Also there must be interaction between A and B in order to produce the energy we call "thought" or "idea." To quote: "The neural machinery will no more work solely on A or solely on B than will a petrol motor run solely on petrol air; there must always be the mixture."

The egoneurogram pattern, the effects of alcohol in increasing the amplitudes of the neurograms with the subsequent effects on all other processes in the organ of mind are ably presented. In order properly to appreciate the soundness of the proposition one needs to

study very carefully figure 2 and its explanatory notes.

Chronic alcoholism considered from the standpoint of alcohol acting as a substitute for other "drugs" normally present in the body, is not entirely new but the author's clear and picturesque comparisons are well worth reading.

General anaesthesia is considered a condition of feverish activity of central neurones and end organs with an altered balanced of kinesiphores, instead of a depressed activity hitherto assumed.

The reader is earnestly advised to go through the entire book slowly and carefully and then to reread it before forming an opinion. So radical are the ideas presented that they should furnish new incentive for further research into the effects of alcohol and anesthetics on the nervous system of man. F. P. L.

DISEASES OF THE THYROID GLAND. By Arthur E. Hertzler, M.D., Chief Surgeon, Halstead Hospital; Professor of Surgery, University of Kansas. With a chapter on Hospital Management of Goiter Patients by Victor E. Chesky, M.D., Chief Resident Surgeon, Halstead Hospital. Third edition, entirely rewritten. St. Louis: The C. V. Mosby Company. 1935. Price \$7.50.

This new edition brings to date the author's personal impressions in treating affections of the thyroid gland. In characteristically frank and pungent manner the author gives his views through three hundred pages of easily read text. Numerous excellent photographs of patients and specimens illustrate the book although pathology is not stressed because Hertzler is preparing a special volume on this subject. Statistics are banned and the reader will chuckle at many a pointed aphorism. Essentially devoted to experiences developed in the Halstead Hospital there are few references to the literature but much sound philosophy on the broader conceptions of the thyroid and its influence.

One notes with regret the absence of such subjects as refractoriness to iodine, radiation of toxic goiters and total ablation of the gland for chronic heart disease. Despite these omissions the book offers a rational and interesting guide to present day thyroid gland therapy. P. S. L.

A TEXTBOOK OF LABORATORY DIAGNOSIS. With Clinical Application for Practitioners and Students. By Edwin E. Osgood, M.A., M.D., Assistant Professor of Medicine and Biochemistry, Director of Laboratories, University of Oregon, School of Medicine, Portland, Oregon. Second edition with twenty-seven figures in the text and ten colored plates. Philadelphia: P. Blakiston's Son & Co., Inc. 1935. Price \$6.00.

This book is very unusual. It is a textbook of laboratory diagnosis but it is not a textbook of clinical pathology for many of the procedures of clinical pathology are omitted. Osgood divides the book into two sections: First, a clinical interpretation of laboratory findings; second, the technic of laboratory procedures. While he states that this book is designed for medical students and practitioners as well as instructors in medicine, the reviewer believes that it is possibly useful only to those who are giving a course in clinical diagnosis in which they are emphasizing the value of laboratory procedures. It is, therefore, manifestly not designed for laboratory workers or for practitioners but rather as a guide-book for an instructor in medicine. As such, it is highly useful.

In the discussion of disorders of the urinary tract, carbohydrate, protein, and fat metabolism, the author is very thorough and explicit. The section devoted to hematology is filled with details but, unfortunately, the advantages of many hematological studies in a very large group of diseases have been almost lost sight of, namely, infections. He discusses well the origin and development of blood cells, the functions of the various hematopoietic organs, the normal values in the enumeration of red and white cells and the various species of leukocytes and blood platelets. Little attention is paid to a most important blood cell, the juvenile or metamyelocyte and little is said about the Schilling methods which are today so widely used. On page 415 under the heading "Determining the Prognosis from the Differential Cell Count," he gives a rather loosely written account of the various cells in the Schilling method, but no one could possibly draw conclusions about the niceties of the Schilling prognostic equation from such a description. He also gives a brief account of Cooke and Ponders' so-called "weighted mean," also Kugel Rosenthal color index and the so-called filament and non-filament count. All these observations have sprung up since the epoch-making announcement of Schilling's methods. Blood dyscrasias have been given the position of prominence in this chapter on hematology while, we repeat, the common everyday diagnosis and prognosis of infections have been scantily alluded to. There is a good discussion of plasma cell leukemia and an elaborate discussion of hemoglobin, volume and saturation index.

In the second section of the book will be found the usual tests of urine, gastric contents, blood, feces, etc. The chapter on blood chemistry is incomplete, not only in the choice of tests submitted but in the variety of methods given. Opinions differ as to the most accurate of various laboratory tests for the same substance. It is our belief that textbooks for teaching purposes should contain enough variety to fit the needs of the majority of teachers.

Practically no attention is paid to the various methods of serologic diagnosis except the notation that the Wassermann and Kahn tests are used for the diagnosis of syphilis in its various manifestations. We find no account of how these methods are to be carried out nor is there an adequate description of the dark field examination of the primary sore.

This book represents, therefore, an interesting piece of literature which can be used successfully in conjunction with more thorough text books on clinical pathology but it cannot possibly be used in any other way owing to its incompleteness and its specialization.

R. B. H. G.

PREVALENCE OF MILD BRUCELLA ABORTUS INFECTIONS

In the last few years the profession has become increasingly conscious of the prevalence of undulant fever. But W. Beecher Scoville, New York (Journal A. M. A., Dec. 14, 1935), does not think that it has yet realized how common the subclinical and ambulatory forms may be. He is of the opinion that many such cases may masquerade under the guise of infectious arthritis, nervous exhaustion, undiscoverable focal infection and chronic neutropenia. In his case of mild ambulatory brucella infection with normal or nearly normal temperature and negative agglutination titers, but markedly positive skin and phagocytic tests, there were enough subjective symptoms to cause incapacitation, yet with little enough objective signs to cause a diagnosis to be made of neurasthenia, chronic neutropenia and undiscoverable focal infection.

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THE PREVENTION OF CHRONIC OSTEOMYELITIS

EARLY DIAGNOSIS AND TREATMENT OF ACUTE
OSTEOMYELITIS

J. ALBERT KEY, M.D.

ST. LOUIS

The International Society for Crippled Children is at present interested in the prevention of crippling; and chronic osteomyelitis is one of the most important causes of crippling in both children and adults. Not only is the chronic osteomyelitic patient frequently a permanent cripple, but he is also an added burden on the economic system because he is subject to repeated acute flare-ups of the disease involving illness, hospitalization and surgery; or he may be the unhappy victim of repeated futile attempts to cure the disease by more or less radical operations.

It is the tendency to require prolonged treatment and repeated hospitalization which makes the chronic osteomyelitic so much more common in the hospitals than is the acute disease. Of the acute cases about 20 per cent die and about 30 per cent are cured by early operation so the chronic osteomyelitis which is so frequently seen represents about 50 per cent of the acute cases which have occurred. It is my belief that early diagnosis and prompt treatment of acute osteomyelitis will not only save the lives of many patients, but will either prevent the development of a chronic bone infection or will so limit the area involved that the diseased bone can be removed surgically and the patient can be permanently cured without crippling. It is thus evident that the recognition and prompt treatment of the acute disease may result in a marked decrease in the number of cases of severe chronic osteomyelitis.

A bone may be infected by casual organisms in the blood stream, by extension of disease from adjacent soft tissues, or by the implantation of bacteria through open wounds.

ACUTE HEMATogenous OSTEOMYELITIS

Acute hematogenous osteomyelitis is a disease of childhood, but like other children's diseases it may occur at any age. The early diagnosis may be extremely difficult or even impossible, especially if the infection is deep seated and the patient is too young to answer questions and to cooperate with the examining physician. However, the most important difficulty in the early diagnosis is that the average physician is not aware of the disease. If the attending physician is osteomyelitis conscious the diagnosis is usually made early and prompt surgical intervention is advised.

In a typical case the onset is abrupt and characterized by high fever with or without a preceding chill or convulsion and severe pain and disability in the affected extremity. There may have been a prodromal period of one or more days during which the child was lethargic or fretful and had no appetite but was not sufficiently ill to cause concern; and there is frequently a history of a preceding injury to which the symptoms are ascribed.

When called to see a sick child who presents evidence of an acute infection and who complains of, or if too young to complain, exhibits evidence of pain and disability in one extremity, the physician should think of acute osteomyelitis. All too frequently the child is found to have a red throat and this or the ears or the gastro-intestinal tract is blamed for the toxic symptoms; the child is given a sedative and a cathartic and the true nature of the condition is not suspected until several days later when the swelling, redness and obvious local inflammation in the affected area obtrude themselves upon

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the casual observer. By this time there is apt to be widespread death of bone and a blood stream infection, both of which might have been prevented by early diagnosis and treatment.

The clinical picture of an acute osteomyelitis resolves itself into (1) the symptomatology of an acute infection and (2) the symptoms of the local lesion. The general symptoms include general malaise, fever, gastro-intestinal symptoms, and changes in the blood. It is to be noted that in acute osteomyelitis as in other infections the disease may vary from a very mild infection which tends to quiet down and may heal spontaneously to a hyperacute fulminating infection with profound toxemia, very high fever and death from septicemia a few days after the onset.

In the average case there is general malaise with moderate prostration and marked anorexia. The temperature tends to be moderately high (103 to 105) and the child is dehydrated. The urine is scanty and highly colored and may contain albumin and casts. The white blood count is elevated, usually 15,000 to 30,000. The red blood cells and hemoglobin are at first normal, but as the disease continues there is a rapidly progressing secondary anemia from blood destruction and the child becomes pale and emaciated. The symptomatology of the local lesion likewise varies with the virulence of the infection and with the location of the lesion. Ordinarily, the first local symptoms are pain in the limb and stiffness in the neighboring joint. It is to be noted that since there are no sensory nerves in the bone, pain and joint stiffness do not occur until the inflammation has extended to the periosteum and if the infection began in the medullary cavity or deep in the cancellous bone the disease may be well advanced by the time pain and joint stiffness are present.

The pain causes the child to refrain from using the limb or if the disease is relatively mild and the child is up and about, pain in the lower extremity will cause him to limp. If the pain is more severe the limb is protected by muscle spasm and the child not only refuses to move it, but objects strenuously to its being moved passively. In an acutely ill child who is too young to describe his symptoms it is the refusal of the child to use a limb and his objection to its being handled which first lead the physician to suspect the presence of a pyogenic infection in the limb.

Once the condition is suspected an early

diagnosis can usually be made. The pain is quickly followed by local tenderness. This is usually present by the time the child is seen by a physician, but it may be difficult to elicit, especially in a very young or unco-operative patient. In palpating such patients the utmost gentleness must be observed and the pressure with the tip of one finger must be slowly increasing and sharply localized directly over the bone while care is taken that the suspected limb is supported and that it is not moved while it is being palpated as the movement may cause pain in a neighboring joint and thus lead to an erroneous opinion regarding the site of the disease. Likewise, the opposite limb should be palpated in the same manner and the patient's reactions carefully noted. In this manner one can localize the disease fairly accurately before the swelling, redness and local heat are manifest.

When the infection reaches the periosteum the inflammation spreads to the surrounding tissues and the edema and vascular dilation cause swelling, local heat and redness. The rapidity with which these signs become manifest varies indirectly with the thickness of the soft tissues over the infected area. The swelling is most easily detected by inspection, comparing the affected limb with its fellow, care being taken that the two are in the same posture. Local heat may be obscured by high fever or the recent contact with an ice bag or it may be simulated by recent application of heat to the painful area. Furthermore, it is to be noted that an area which has been covered by clothing will be warmer than an area which has been uncovered. It is also to be noted that the application of local heat or cold may cause redness of the skin.

Fluctuation does not occur until fluid has stripped up the periosteum over a considerable area and has collected beneath it in sufficient quantity to be detected through the intervening layer of soft tissue or until the periosteum has been ruptured and an abscess has formed in the soft tissues. If the patient is seen early the diagnosis should be made before fluctuation is present.

The roentgen ray should be mentioned, not as an aid in the diagnosis of acute hematogenous osteomyelitis but as a delusion which has caused much crippling and the loss of many lives. This is due to the popular belief that if the bone appears normal in the roentgen ray then the bone cannot be diseased. Not only is this belief popular among the laity, but unfortunately it is

shared by many physicians. A bone which is necrotic and filled with pus may appear normal in the roentgenogram. In osteomyelitis the earliest roentgen ray changes occur at about the tenth day. In cancellous bone these changes appear as areas of decreased density which are caused by destruction of some of the trabeculae and the bone appears mottled or worm eaten. In compact bone the earliest roentgen ray change is the deposit of a thin layer of subperiosteal bone around the cortex and this is evidence that the periosteum has been stripped from the underlying cortex and has started to form an involucrum. It is obvious that these are late manifestations of the acute disease and that radical treatment should be instituted before they appear.

Time does not permit me to consider the differential diagnosis or the symptoms peculiar to the disease when it involves certain specific bones, but I wish to emphasize the point that a sick child who gives evidence of a severe general infection and who exhibits disturbance of function and pain in one extremity should be seen by a surgeon and seen at once.

The treatment of acute hematogenous osteomyelitis is surgical drainage of the involved area and this should be instituted just as soon as the surgeon can make up his mind where to operate, because delay means further destruction of bone and further danger of a septicemia which may be fatal. On the other hand, it does no good to expose and open the lower end of the femur if the infection is in the upper end of the tibia. So the surgeon must usually wait until the pain and tenderness are definitely localized or in a young patient until swelling appears.

The operation should be done under general anesthesia and should be so planned that the suspected area in the bone will be adequately exposed through an incision which is so placed that the important structures will not be injured. As a rule, cleavage planes between muscles are followed and bleeding vessels are tied as they are cut in order to cause as little loss of blood as possible. Personally, I do not use a tourniquet in operating upon acute osteomyelitis because of the traumatism of the tissues caused by the tourniquet. When the bone is reached one will usually find the periosteum edematous and reddened. When it is incised a small amount of serosanguineous fluid or pus may escape or the periosteum may be lifted up by a definite subperiosteal abscess. On the other hand, it may appear entirely normal.

Regardless of the appearance of the periosteum it should be split longitudinally and the underlying bone exposed. If pus has been found under the periosteum the underlying bone may appear dull white and dead and pus may exude from it.

From this point on surgeons differ in their method of treatment. Some believe that the incision of the periosteum is all that is necessary to cure the disease. Others bore a series of small holes in the cortex to promote drainage of the medullary cavity. Personally, I think that if one is sure enough of the diagnosis of an acute osteomyelitis to operate for the condition, the bone should be opened widely. It should be guttered, about one fourth of its cortex being removed and the opening should extend as far up and down the bone as the marrow and cancellous bone are found to be infected. With a sharp chisel or osteotome this gutter can be cut without shocking the patient. However, if the surgeon so desires he can drill a series of holes through the cortex and remove the intervening bone with a chisel. When the marrow is exposed it may be found to consist of an abscess cavity or it may be simply highly inflamed, with small abscesses scattered through the fatty tissue. The marrow cavity may be wiped out gently with dry gauze but should not be curetted; if the cancellous bone is definitely infected a rather deep opening should be made into it in order that the spongy bone may drain freely.

The objection to the guttering operation is that one tends to implant infected material into living bone. However, it is my belief that if adequate drainage is provided to all parts of the wound after operation little or no harm will be done by the infected material coming in contact with bone which is not infected. After hemostasis is completed the wound should be sponged dry and packed lightly with vaseline gauze, care being taken not to place the gauze so that it will plug off a part of the wound and prevent drainage. The vaseline gauze extends for a short distance over the skin margins and the wound is then covered with a dry dressing and the limb is immobilized in a plaster of paris cast. The patient is given supportive treatment, usually intravenous glucose or subcutaneous salt solution and if he is very sick he should be transfused with either whole or citrated blood.

It is advisable to take a blood culture before or during the operation, but operative intervention in an acute osteomyelitis should not be postponed while waiting for the result

of a blood culture if the signs are sufficiently pronounced to localize the disease with a reasonable degree of accuracy. If the blood culture has been positive the septicemia is best treated by repeated small transfusions (100 to 300 cc. being given every one or two days, the amount depending upon the size and condition of the patient). As soon as the patient is able to take food he should be put on a high calorie diet.

The cast which was applied at the time of the operation is left on for a period of from four to six weeks or until the objectionable odor makes its removal advisable. If the bone has been adequately drained and the patient has not developed a septicemia, the temperature will fall after the operation, usually by lysis, especially where cancellous bone is involved, and the pain will disappear. Any subsequent alarming elevation of temperature will probably be due to a metastatic focus in some other bone or to blocking off of the infection at the site of the original operation. Metastatic infections, of course, require further operative treatment, but are not apt to be as fulminating as was the original infection. The blocking off of the infection in the original wound can usually be taken care of by removing the vaseline pack and redressing the wound. At the second dressing the wound will usually be found lined by granulating tissue and markedly reduced in size. It should be cleaned with soap and water, a new vaseline gauze pack applied and a new plaster of paris cast applied. If the operation has been done sufficiently early there may be no sequestration and the wound may go on to complete healing.

It is to be remarked that at the time of the primary operation no attempt is made to remove all the infected or necrotic bone because it is impossible to determine the extent of the infection and necrosis and because the operation should be made as simple as possible in order to prevent surgical shock in an already sick patient. If sequestra have formed they can be removed some months later when an attempt is made to cure the chronic condition.

INFECTION OF BONE BY EXTENSION

Acute infection of bone by extension of infection from surrounding soft tissues is best prevented by thorough and adequate drainage of the soft tissue infections which are close to bones. The most common types are infections of the terminal phalanx from felon and infections of the patella or olec-

anon from bursitis. If the bone becomes infected it should be treated by incision, exposure of the infected area and packing with vaseline gauze and immobilization of the limb just as described above.

INFECTION OF BONE BY IMPLANTATION

Infection of bone by the implantation of organisms is most frequently seen in compound fractures; it also occurs in bullet wounds which may penetrate the bones. It can usually be prevented by early and careful debridement of the wound followed by a primary or secondary closure with reduction of the fracture and immobilization either in a plaster of paris cast or in a splint.

There is considerable difference of opinion as to what should be done at the debridement and there is also difference of opinion among surgeons as to what type of compound fracture should be debrided. In civil life, wounds caused by pistol or rifle bullets tend to remain sterile and the skin wounds should be sterilized with iodine or other antiseptic or sterile dressing and the fracture treated as a simple fracture.

In wounds compounded from within; that is, those in which the laceration is due to projection of the fragment of bone through the skin and in which there is only a puncture wound in the limb when the patient is seen, there is often reasonable doubt as to whether or not a given wound should be debrided. If the patient is clean and if there is reasonable evidence from the history of the injury that the end of the bone has not been contaminated, then the puncture wound may be wiped with an antiseptic, covered with a sterile dressing and the fracture treated as a simple fracture. In the meantime the patient should be carefully watched and if signs of sepsis appear he should be operated upon immediately. In the majority of cases, however, the surgeon will find that he is not able to say with a reasonable degree of certainty that the bone has not been contaminated. Consequently, he will be on the side of safety and will debride the wound just as though it had been contaminated from without.

In wounds which had been contaminated from without, infected foreign material has been forced into the tissues by the fracturing force and these, of course, should be debrided. At the operation the patient should be given a general anesthetic and either with or without a tourniquet the limb should be scrubbed with green soap and water and shaved. Then the wound should be washed

out with soap and water and the limb should be washed with alcohol and dried and then with ether. The wound edges should then be excised, care being taken not to remove any more skin than necessary. With a clean knife the wound should be enlarged upward and downward in order to expose the underlying fracture. Any visible foreign material should be removed and grossly damaged and devitalized tissue should be removed. Loose fragments of bone which are completely detached are removed and grossly contaminated ends of the bone are excised. The wound should then be irrigated thoroughly with salt solution, care being taken to force the stream down into the recesses of the wound and then nerves, tendons and muscles which are severed should be repaired. The fracture is then reduced and the subcutaneous tissues are closed loosely and the skin is sutured loosely with silkworm gut and a cast or splint applied. If there is doubt as to whether or not the wound is infected it should either be drained or left open and packed with vaseline gauze. Most compound fractures treated within the first twelve hours after the injury can be closed while those in which the operation is not performed until more than twelve hours has elapsed should be left open and packed with vaseline gauze. A later second closure can be done if necessary. If a drain is inserted it should be removed in about forty-eight hours.

If the wound has been closed the patient should be watched carefully for evidence of sepsis, but the surgeon should not reopen the wound simply because the patient has a moderate temperature, as postoperative bone injuries frequently run a temperature of 101 or so for a few days; but if the temperature is elevated beyond 101 and if the patient has severe pain at the site of the wound and the pulse is elevated beyond what one would expect from his general condition and temperature, then the wound should be opened widely; it may be packed with vaseline gauze or the Carrell-Dakin method may be used. If the wound remains clean and heals without sepsis the fracture may be treated as a simple fracture and may be expected to unite in the usual time. If it becomes infected the infection may clear up after prompt opening of the wound or it may progress and if the patient survives chronic osteomyelitis may develop and persist for months or years.

Considerable thought on the subject of prevention of crippling in children leads me

to the conclusion that probably the most promising single step which we can take in the right direction will be the development of an awareness of acute osteomyelitis by general practitioners so that they will suspect its presence early in the course of the disease and will promptly institute surgical treatment. Finally, I would like to leave with you the thought that I consider it better surgery to open a normal bone under an erroneous diagnosis of acute osteomyelitis than it is to delay operation until the diagnosis is obvious and the roentgen ray discloses changes in the bone.

Beaumont Medical Building.

A COMPARISON OF ENUCLEATION AND TRANSURETHRAL PROS- TATIC RESECTION

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KANSAS CITY, MO.

The actual need of prostatic surgery for the correction of bladder neck obstructions and the relief of its symptoms comes only in the declining years of a man's life. The toll of time, neglect, abuse and the deterioration in the normal performance of the vital organs of his body have become manifest. Therefore the sufferer from prostatic disease comes to us for relief with a decided handicap. As physicians we are bound to accept this challenge of nature to restore him to functional happiness and to protect his system from further deterioration.

The cause for the hyperplasia of prostatic tissue being undetermined the means of preventing its occurrence is not available. The inevitable occurrence of a complete retention forces the patient as well as his physician to accept some means of relief from the obstruction to the evacuation of the body fluids and creates an emergency. In order to insure success for prostatic surgery partial or complete temporary relief from the obstruction must be obtained otherwise death will certainly follow. The method may be by the use of a retention catheter or by suprapubic drainage through a suprapubic cystotomy or the less acceptable expedient of suprapubic trocar evacuation. The method can be continued until urinary infection, increased blood chemistry and deteriorated renal function have been adjusted into their normal ratios; this being superior to any type of prostatic surgery and from which the operator has no choice.

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Prior to the advent of any type of transurethral prostatic surgery the controversy was between the two types of prostatic enucleation, the perineal and the suprapubic. Each type had its advantages meriting the usage as the continuation has proved. Certainly there has been grief to the operator as well as to the patient in either type of procedure, not always due to the actual preparation for surgery nor to the type of surgery but to the length of time elapsing before surgical advice was sought, for it is during this period that irreparable damage is done.

The next advancement in urological surgery naturally would be to achieve a method of correction which would be less hazardous from the point of mortality, which would materially shorten the period of operative disability and therefore be a convincing argument for relieving a man of the known symptoms which inevitably would lead to a complete retention, thereby forcing the patient to accept surgery to save his life.

Early methods in this direction necessarily consisted of the punch removal without visualization of certain favorable types of prostatic obstructions; and being done without visualization, many were the bad results in order to have some happy consummations. This deterring factor was soon relieved by combining the cystoscopic principles and more satisfactory end results were achieved. These methods still had no means of controlling hemorrhage; but soon electrocautery refinements were instituted to decrease the immediate bleeding; but delayed hemorrhage then made its appearance as a menace due to sloughing of tissue destroyed in the procedure.

Just at this time we have accepted a step-child into our urological family in that a newer method of transurethral resection has been advanced. This procedure combines the features of complete visibility during operative procedure. The cutting loop can actually be placed by the operator into such a position, and through a regulated current he can cut sections of prostatic tissue until the obstructing deformity has been removed. Should this cutting current fail to control bleeding the type of current can instantly be changed into one for the coagulation of the tissue and the control of the bleeding.

The advocate of resection is prone now to see the merits of that procedure and to champion his cause as did those who advocated suprapubic and the perineal section because he has been made the object of criticism because of the rapid stride of the pendulum in his direction. Prostatic patients have been more inclined to seek this method than have many physicians to recommend it;

as a result many old wrecks who feared enucleation are now anxious to accept resection. Our personal records reveal that 50 per cent of our resection cases have been over 70 years of age and 8 per cent over 80 years of age. The burden of correct publicity lies upon the shoulders of our profession, and the early diagnosis and proper relief of the symptoms can greatly relieve the advanced changes of renal damage and a cardiac syndrome.

The permanency of transurethral resection has justly been questioned, and unfortunately it cannot be conclusively disregarded since even in complete enucleations both benign and malignant recurrences have occurred to such an extent that reoperation was required. However, in cases where such has occurred and the patient advised relative to enucleation or further resection, he has usually selected the transurethral method with its shorter period of hospitalization and disability and less discomforting convalescence.

The resultant febrile reactions and complicating epididymitis following retention catheter drainage has been almost eliminated by observance of strict asepsis of not only catheterization, but also of bladder irrigation and drainage tube and container sterilization.

Postoperative hemorrhage has usually been found to result from lack of proper coagulation during operative procedure rather than from direct bleeding, as incomplete coagulation can allow immediate bleeding and careless massive coagulation will invite postoperative sloughing and delayed hemorrhage.

The transurethral resection for satisfactory results depends entirely upon the judgment, skill, dexterity and ingenuity of the operator, who must be first of all competent in the use of the cystoscope, capable of recognizing the normal from the pathological condition of the urethral, bladder neck and bladder anatomical approximations; because a satisfactory resection must restore a normal and complete evacuation of the bladder urine and the proper function of the bladder sphincter.

For a comparative study we have taken only the case records of all prostatic obstruction cases which were admitted to the Research Hospital and have condensed what to us seems all important factors. This shows that for the last three years the average age of the patient runs almost parallel; the mortality percentage favors the resection in 1934 and is equal for 1932 and 1933. The average postoperative convalescence for the three-year period is thirty-two days for enucleation and eleven days for resection.

CESAREAN SECTION

A DISCUSSION OF ITS INDICATIONS AND INCIDENCE IN THE ST. LOUIS MATERNITY HOSPITAL

OTTO H. SCHWARZ, M.D.

and

RICHARD PADDOCK, M.D.

ST. LOUIS

In the last fifteen years there has been a steady increase in the incidence of cesarean section. During this period this incidence has also increased somewhat on our service in Barnes Hospital and later in the St. Louis Maternity Hospital, but the figures both for private patients and ward patients can still be regarded as quite conservative in comparison with reports from similar services elsewhere. The increase in the number of operations is probably due to better technic in its performance, and this is chiefly due to the development of the lower uterine segment operations. Also the operation itself is not too difficult to perform but the high mortality rate which follows is not appreciated generally. The excellent results obtained in some clinics as regards maternal mortality is misleading but even here the best figures show a death rate well over 1 per cent.

The authors had the intention of reviewing the whole situation thoroughly but such a review has recently been made by Stander and therefore we refer the reader to his publication. However, we wish to mention that Plass has pointed out that the death rate for this country is between 5 and 10 per cent following cesarean section, most likely closer to the latter figure. Plass estimates that 25,000 cesarean sections are performed each year in this country, which would mean a death rate of about 2500 mothers a year. He feels that three fourths of these operations are unnecessary and that at least 2000 women thus lose their lives yearly. This helps to swell the general maternal mortality rate of the country.

We wish to review our experiences with cesarean section during the last eight years, that is since the opening of the St. Louis Maternity Hospital in August, 1927. The accompanying charts will best explain our experiences and show our results. Although much has been said about indications and abuse of cesarean section resulting in the high maternal mortality rate, the type of operation selected is likewise important in lowering or raising the mortality rate. It has been known for a long time that the classical cesarean section has its definite limitations.

It is a dangerous procedure in potentially infected cases, and especially when performed late in labor. Cesarean section combined with supravaginal hysterectomy is an excellent procedure but it is rather radical and many reports show that it carries with it a definite increase in operative mortality. These facts resulted in the development of another technic; namely, the extraperitoneal operation. This procedure was never performed successfully on a large scale but it led to the development and perfection of the so-called transperitoneal lower cervical or lower uterine segment operation. In our earlier experiences at Barnes Hospital we resorted either to the classical operation or supravaginal hysterectomy. In recent years we have been using the lower uterine segment operation with the longitudinal incision most frequently. We feel it should be emphasized that this operation will not prevent the spread of virulent infection, but fewer cases of extension of low grade infection will follow its performance. Also in clean cases it leads to better scar formation and there is less tendency for abdominal adhesions to develop as in the case of the classical operation.

Quite recently we have been using the transverse incision in the lower uterine segment, as advocated by Phaneuf. The exposure is far better and accordingly the operation can be carried out more easily. This is true especially in elective cases. The only contraindication to this operation which the authors feel might be considered is the question of the healing of the scar. It is well known that in the use of the old transverse fundal incision the poorest types of scars were obtained, and many cases of rupture of the uterus followed this type of incision. Phaneuf, who has had the largest experience in the world with this operation, found in studying his cases at subsequent operation, that the scars in the transverse incision were equally as good as those in the longitudinal. He has performed 515 cervical cesarean sections, using the transverse incision in 292. In the longitudinal incisions ninety-nine previous scars were examined, ninety-three were solid and invisible to the naked eye, three scars were defective, two were thin, and one scar that extended into the body of the uterus was well healed in the lower segment and thin in the corporeal portion. In the transverse incisions, there were forty scars which were solid and invisible to the naked eye, three thin, two defective and two were thin after the third and fifth cesarean sections.

Although Munro Kerr suggested this type of incision over fifteen years ago, it was never popular, very likely because most operators thought the scars would be defective. Recent experiences of Phaneuf show that the transverse incisions heal about as well as the longi-

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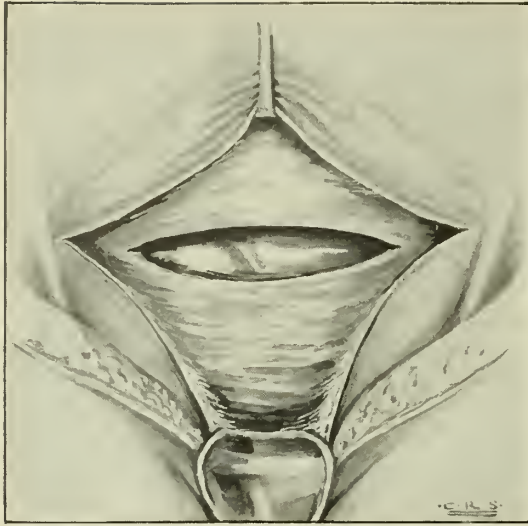


Fig. 1

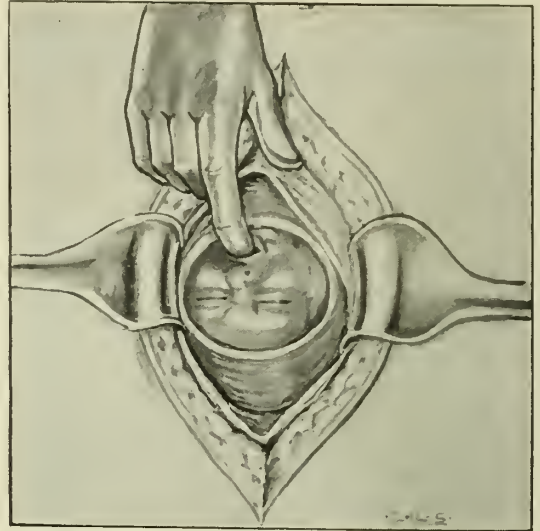


Fig. 2

tudinal ones. Since the report by Phaneuf we have been using this operation and from present indications it is becoming the most popular. All figures in the charts for this operation are for operations performed in the last year and a half.

Another interesting use of this procedure is in cases where hysterectomy is indicated. The operation is started in the usual way and the child removed through the incision. The broad ligaments are clamped and cut and the uterus amputated by continuing the primary incision until it has encircled the uterus.

In the eight year study our cases are divided into two groups, those of the ward service and those of the private service. The cases are also considered collectively. The incidence of cesarean section covering this period is one in 62.3 deliveries. The cases are grouped according to indications for operation. The main groups in this list are contracted pelvis, antepartum hemorrhage, toxemias and all other indications. In the toxemias the cases were for the most part fulminating eclampsia which had been given a trial at conservative treatment. There were also a few cases of severe preeclampsia in this series.

As is the case in most American clinics, the increase in incidence of cesarean section comes chiefly under the heading of "all other indications," where many unusual conditions have been indications for the performance of this operation. We have had a similar experience with this group but the incidence in our series is not so great as in other reports. In this group we see chiefly cases of pelvic tumors, postmaturity, cardiac disease, elderly primiparae and cases to be sterilized.

The maternal and fetal mortality rate of the series is listed in the charts. There were nine

maternal deaths and the cause of each is stated. There were thirteen fetal deaths six of which occurred in premature infants. This number also included the stillbirths in the series.

The choice of operation is most important. We are now performing almost exclusively the low cervical operation and the low cervical with hysterectomy where the latter procedure is indicated. We feel that in certain cases of placenta praevia and in an occasional eclampsia, which are poor operative risks, a quickly performed classical operation may be justified, although we are inclined to use the low segment operation on these occasions as well.

Local anesthesia is the procedure of choice, using the technic as outlined by DeLee. In cases where there is some tenderness experienced with the stripping off of the peritoneum, gas-ether over a short period of time along with local anesthesia can be carried out excellently.

From a study of chart 1, which covers the entire series, one may readily see that in the handling of ward patients we were very conservative in carrying out cesarean section. This is more striking when we consider that about 20 per cent of the ward cases are colored. The indication of contracted pelvis is still the most common one, although the severe types of deformity are now much less common than in several decades past.

The maternal mortality in this series about equals that found in other clinics where the conservative attitude is adhered to. In clinics reporting the lowest figures the number of operations in so-called elective cases is very much greater. These are obviously better risks and therefore if the operation is performed in a

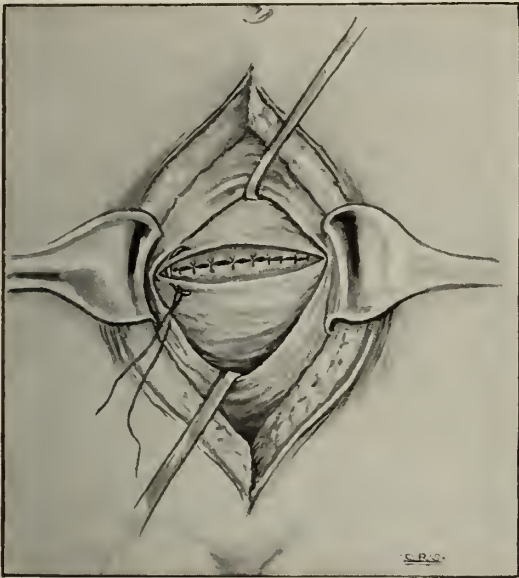


Fig. 3

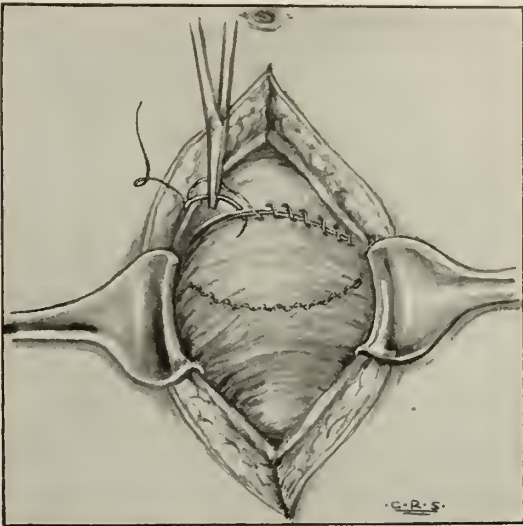


Fig. 4

large number of this type of case, the maternal mortality naturally will approach 1 per cent.

We have included four illustrations, showing points of technic in the transverse operation. Figure 1 shows the lower uterine segment exposed, with the turning back of two flaps of peritoneum. The upper flap may be shorter than that in the longitudinal incision. A slightly curved incision is made transversely, with the

concavity of the curve toward the upper abdomen. The incision crosses the midline four or five centimeters below the junction of the upper and lower uterine segments.

Figure 2 shows the delivery of the child. In most instances the technic of DeLee, freeing the chin above, can be carried out. Delivering the head with pressure from above and raising the vertex with the left hand, as advocated by Phaneuf, is also useful.

Figure 3 shows the suturing of the lower uterine segment, one interrupted and one continuous being all that is necessary.

Chart 1. Cesarean Sections
Totals, 1927-1935

	Ward	Private	Total
Deliveries	9031	4546	13,577
Operations	123	95	218
Type			
Classical	31	53	84
Classical + Hysterectomy	23	22	45
Low Cervical	43	16	59
Low Cervical + Hyst.	9	1	10
Low Trans. Cerv.	12	3	15
Low Trans. Cerv. + Hyst.	5	0	5
Total	123	95	218
Operative Incidence	1 in 73.4	1 in 47.8	1 in 62.3
Maternal Mortality			
Deaths	6	3	9
Percentage	4.6	3.2	4.1
Fetal Deaths	11	2	13
	(5 premature)	(1 premature)	(6 premature)

Chart 4. Cesarean Sections
Maternal Deaths, 1927-1935

1.	4868.	Previous section. Flat rachitic pelvis. Elective. Low cervical. Pneumonia.
2.	12940.	Flat rachitic pelvis. Long labor on outside. Low cervical. Septicemia.
3.	13492.	Eclampsia without coma or convulsions. Elective. Classical.
4.	13450.	Decompensated cardiac. Elective. Classical.
5.	5915.	Inertia. Ruptured membranes 3 days. Classical. Staphylococcus Albus peritonitis.
6.	9155.	Contracted pelvis. Eclampsia. Elective. Low cervical adynamic ileus.
7.	2049.	Toxemia + incarcerated myoma. Elective. Porro. Hemorrhage from pedicle.
8.	6148.	Toxemia. Elective. Low cervical. Staphylococcus Albus.
9.	18722.	Toxemia. Elective. Low cervical + hysterectomy. 4 hour post-operative shock.

Chart 2. Cesarean Sections. Indications, 1927-1935

Contracted Pelvis		Antepartum Hemorrhage		Eclampsia		All Other Indications	
Private	Ward	Private	Ward	Private	Ward	Private	Ward
36	66	12	2	4	22	43	33
102		14		26		76	

Chart 3. Cesarean Sections. 1927-1935. All Other Indications

Pelvic Tumor		Post Maturity		Cardiac		Sterilization		Elderly Primiparae	
Private	Ward	Private	Ward	Private	Ward	Private	Ward	Private	Ward
4	7	3	5	5	5	1	10	6	0
11		8		10		11		6	

Chart 5. *Cesarean Sections*
Fetal Deaths

Ward	Private
1. Dead on admission, 5130 gm. Hard labor on outside.	1. 3400 gm. Died 15 hours after delivery.
2. Premature, 1275 gm.	2. Chronic nephritis. Premature, 32 weeks.
3. Premature, 1800 gm.	
4. Premature, 2500 gm.	
5. Stillborn, attempts at delivery on outside.	
6. Long labor on outside, 4700 gm.	
7. Eclampsia.	
8. Premature, 28 weeks.	
9. Stillborn, 1100 gm.	
10. Premature, 2160 gm.	
11. Premature, 1030 gm.	

Figure 4 shows the closing of the peritoneal flaps, the dotted line indicating the line of incision in the lower uterine segment covered with peritoneum.

We agree with Plass and Stander that cesarean section is greatly abused and that the high mortality rate is due in great part to the improper choice of operation. If indications are sound and the proper type of operation performed, cesarean section in this country as well as in any other country, should be a real life-saving procedure and not swell the maternal mortality rate as a result of its abuses.

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ECTOPIC PELVIC KIDNEY

Gilbert J. Thomas and J. C. Barton, Minneapolis (*Journal A. M. A.*, Jan. 18, 1936), define an ectopic kidney as one that is congenitally displaced and has never occupied a normal position. An ectopic pelvic kidney is one that is fixed within the bony pelvis or across the spine and derives its blood supply from the adjoining large vessels, such as the iliac arteries. The embryology, incidence, anomalies of position and complications, diagnosis, treatment and operative procedure of the ectopic pelvic kidney are discussed, from which the authors draw the following conclusions: 1. Ectopic pelvic kidney is a defect of embryologic development and occurs before the eighth week. 2. The incidence in congenital ectopic kidney is one in 822 necropsies, and one in 547 urologic examinations. 3. Ectopic pelvic kidney must be considered when pelvic tumors are found in both sexes, and in female when abortions occur or when normal pregnancies are interfered with by some abdominal or pelvic mass. 4. The diagnosis requires cystoscopy, ureteral catheterization, and bilateral pyelo-ureterograms. 5. Congenital ectopic pelvic kidney may be symptomless. 6. Treatment consists of nephrectomy if symptoms are produced by the ectopic kidney, provided the contralateral kidney is normal. If no symptoms are produced, if drainage is good and if no infection is present, nephrectomy is not indicated. The extraperitoneal approach is satisfactory and safe.

FAT EMBOLISM

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AND

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The American literature has not emphasized the importance of fat embolism to the same degree as the foreign. Warthin mentions only fifteen cases up to 1913; Killian in 1931 in another extensive review of the entire subject found only thirty-three cases described outside the German literature. Consequently, we consider it advisable to emphasize the frequency of this clinical and pathologic entity, to indicate the possibility of clinical diagnosis and to suggest the steps to be taken to prevent and treat this serious complication of bodily injuries.

HISTORY

Fat embolism was first described in 1862 by Wagner¹ who found fat droplets in the lung capillaries after bone injuries. These findings were confirmed in the same year by Zenker² in a case of rupture of the stomach followed by resorption of fat from the peritoneal cavity. Shortly afterwards, Recklinghausen³ described the first instance of massive fat embolism in the capillaries of the lung, brain, kidney and myocardium. Later reports established that many diseases could produce fat embolism. Virchow⁴ described the condition in puerperal eclampsia; Czerny and Bergman⁵ in extensive injuries of the subcutaneous fat tissue, even after operations; Klebs⁶ in osteomyelitis; Puppe⁷ in phosphorus poisoning; Fischer⁸ in lipemia; finally Ribbert and Lubarsch⁹ found fat embolism in concussion of the entire body not complicated by fracture. Since that time hundreds of cases have been reported in the German literature so that today this disease is well recognized and accepted as one of the common causes of death.

PATHOGENESIS

Fat embolism can be divided into three groups according to its etiology, viz.: (1) Fat embolism following traumatic or other pathologic destruction of the bone marrow, subcutaneous tissue or other large fat deposits of the body; (2) fat embolism following concussion of the osseous system of the whole body; (3) fat embolism following resorption of fat from the lymph spaces.

The first group concerns all bone injuries with fracture, osteomyelitis, hemorrhage into the bone marrow, surgical operations, as amputations and abdominal operations especially in

From the Menorah Hospital.

fat people; necrosis and inflammation of subcutaneous tissue and rupture of fatty liver.

The second group deals with concussion without fracture and convulsive seizures, as in tetanus, eclampsia, delirium tremens and strychnine poisoning.

To the third group belong the following diseases: Lipemia due to diabetes, nephritis, generalized malignancy, phosphorus poisoning, chloroform, alcohol or potassium chlorate.

Early observers quickly noted that even relatively insignificant injuries could be responsible for very large quantities of free circulating fat and that the concussion of the entire skeleton in trauma is the factor really responsible rather than the direct local bone injury. Several facts seem to substantiate this conception. Isolated fractures of long bones seldom show severe symptoms of fat embolism but fractures of skull bones do so quite frequently. Although skull bones contain very little fat, this type of injury is frequently associated with extensive concussion of the entire skeleton. Experimental fracture of a long bone in rabbits is rarely followed by fat embolism but continuous beating of the femur with a hammer for ten minutes frequently is. The severity of the general trauma is therefore more important than the degree of the local injury.

The amount of fat gaining entrance into the blood stream is a most important consideration. It is estimated that at least a total dose of 200 grams of fat in the circulation is necessary to produce clinical symptoms. It has been suggested that the richer fat content of the bone marrow in young adults accounts for their greater susceptibility to fat embolism.

Dissemination of fat takes place entirely by way of the blood stream. Fat emboli can change their size and form by elongation and can therefore pass through capillaries. The stagnation of fat in the lung capillaries takes place only in the presence of a weak right heart. In a normal individual fat passes through the lung capillaries and may affect any organ in the body.

PATHOLOGY

Death in fat embolism is apparently caused by the plugging of capillaries in vital organs. In the event death follows shortly after injury emboli are mainly observed in the lungs. On the other hand, sudden death may occur a few days after extensive injuries. In this event the emboli may be demonstrated in the capillaries of vital organs, especially in the brain, myocardium and kidney. The delayed form does not necessarily imply the mechanism just described. It is entirely possible, of course, that the delayed appearance of fat in the circulation in pulmo-

nary and visceral capillaries may also be due to a release of fat into the blood stream some time after the injury.

The explanation of the immediate cause of death in either form is of course problematical. Since, however, the first form (pulmonary emboli) is especially prevalent in people with a weak right heart the importance of the heart factor is clearly suggested. It would appear that a weak heart being unable to drive the fat droplets through the lung capillaries produces a stasis in the lung circulation which in turn adds an additional burden on the already disabled heart. Death in the second form, which occurs a few days after the injury, has in our judgment a different mechanism. It has been explained previously that the fat droplets in the individuals with good hearts pass after a period of time through the lung capillaries and then may lodge in peripheral capillaries. If the capillaries of the brain or myocardium are blocked sudden death may occur. The clinical picture, to be discussed later, suggests death due to vasomotor collapse and cerebral changes.

The usual explanation for death offered in the delayed form of fat embolism is that multiple focal necrosis, characteristic of embolic obstruction, is produced in vital organs. The histologic changes in these organs are similar to those following aseptic infarcts from any cause; necrosis, edema, hemorrhage, and possibly leukocytic reaction. Fat embolism in capillaries of visceral organs may also occur immediately after injury. The explanation of this phenomenon may be found in the persistence of an open foramen ovale. Fat droplets pass from the right auricle into the left and from there into remote organs. This type of embolism is known as paradoxical.

LABORATORY DIAGNOSIS

Since the clinical diagnosis of fat embolism can only be suspected definite proof by laboratory methods is highly desirable.

Warthin¹⁰ suggested testing the sputum, urine and blood for free fat globules. Sputum is rarely available but is of definite diagnostic value. Fat globules can be easily demonstrated in unstained moist slide preparations or specimens prepared with usual fat stains.

Urine examination has not proved very dependable. The explanation for this has been offered in a recent article by Jirks and Scuderi¹¹ who found that examination of urine is worthless unless the bladder is completely emptied in a sitting or erect position, because the fat floats on the surface. This procedure is obviously impossible in very sick patients.

The examination for free fat in the circulat-

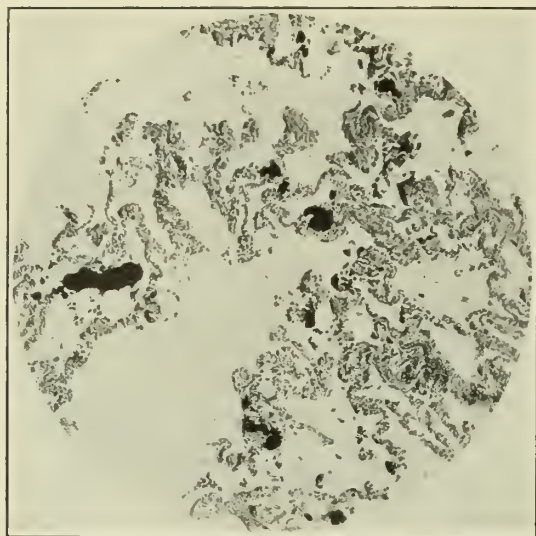


Fig. 1. Section of lung showing multiple fat emboli in capillaries. Note the large blocked capillary on top of section. (Osmic acid preparation.)

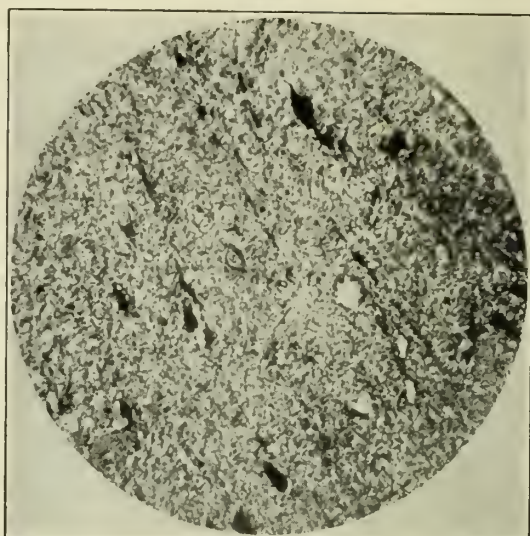


Fig. 2. Section of brain showing multiple fat emboli in small capillaries.

ing blood in our cases has proved to be the most accurate method. The following simple technic yielded the best results: 15 cc. of oxalated blood is immediately centrifuged for one half hour under high speed; the surface of the supernatant fluid is pipetted off with a hair capillary and examined, first unstained then with the addition of Sudan III; fat is easily detected.

The finding of fat in the above test merely indicates lipemia, but its presence in a traumatic case is strongly suggestive of fat embolism in the presence of suspicious clinical symptoms.

The clinical picture of fat embolism presents some interesting features which have previously not been stressed. The symptoms obviously vary according to the two types of embolism previously described; the pulmonary form which may be followed by immediate death and the delayed form in which death is caused by visceral emboli.

The pulmonary form is commonly seen and well known but infrequently recognized. The patient quite frequently shows only slight evidence of local injury but gives a history of injury with severe general concussion. He often appears very well and comfortable when examined after the accident and the doctor is reassuring to patient and family. A short time later the patient may suddenly die, sometimes with no premonitory symptoms; other times death is preceded for a few minutes or longer by restlessness, precordial distress, great anxiety, dyspnea and cough, sometimes with blood streaked sputum. If the patient is examined during this period one observes increasing cyanosis, high pulse rate, marked drop in blood pressure and every evidence of severe shock; a

picture which in many instances is rapidly followed by death. The following case illustrates extensive multiple pulmonary emboli and early death apparently was caused by the fat emboli judging by the postmortem findings.

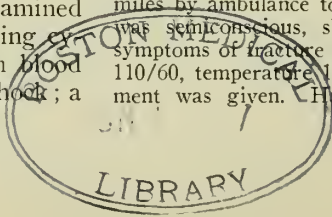
CASE REPORT

A woman, aged 50, suffering from melancholia, attempted suicide by jumping from a second floor window. She was immediately brought to the hospital. The examination showed a compound fracture of the humerus, fracture of the ilium, of the right wrist and left ankle; blood pressure 68/48, pulse 120, stertorous breathing, temperature 100, leukocytes 16,100, erythrocytes 4,050,000. Five hours after the accident she regained consciousness and showed considerable improvement but one hour later she suddenly expired. The autopsy revealed multiple fractures and multiple fat emboli in the lung capillaries.

The delayed form of fat embolism presents mainly two groups of symptoms, viz., (a) local symptoms due to the embolic visceral lesion and (b) constitutional symptoms consisting principally of fever and progressive anemia of hemolytic origin accompanied by rising icterus index. The local symptoms (a) depend on the organs affected, but most cases present a picture suggesting the presence of emboli affecting many organs at the same time. The previously described pulmonary symptoms may also be present in this delayed form. The following case history illustrates this picture.

CASE REPORT

A man, aged 73, previously well, was struck by an automobile and dragged a block. He was brought ten miles by ambulance to the hospital. On admission he was semiconscious, showed lacerations of scalp and symptoms of fracture of skull and ribs; blood pressure 110/60, temperature 102, pulse 112. Supportive treatment was given. His condition became very much



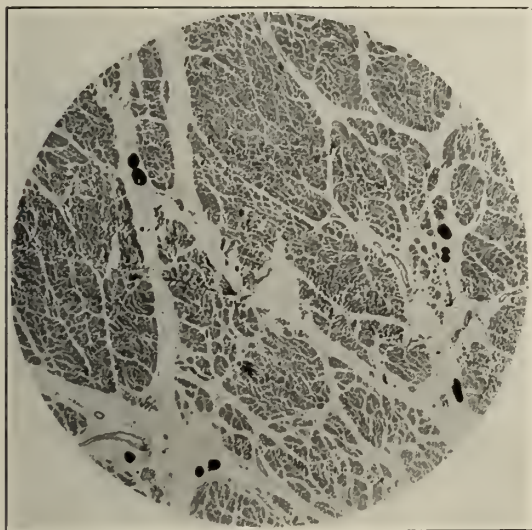


Fig. 3. Section of myocardium showing fat emboli clearly in capillaries of interstitial tissue.

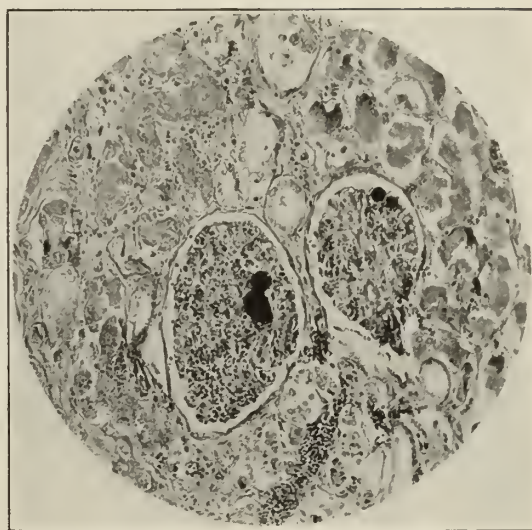


Fig. 4. Section of kidney showing fat emboli in capillaries of the glomeruli.

worse the next day; temperature rose to 105 and rales appeared in both lungs. Next morning he was completely unconscious and died thirty-one hours after the accident. The autopsy showed fracture of the left parietal bone and extradural hemorrhage of moderate degree; severe arteriosclerosis of the abdominal aorta; lungs showed no important changes but special stains revealed extensive multiple fat emboli in lungs, brain, myocardium and kidney.

The important viscera usually affected are brain, myocardium, kidney and intestine.

The characteristic symptoms of embolic brain affections are sudden onset of convulsions, coma and sometimes paralysis, with severe respiratory embarrassment and symptoms of shock. The following case illustrates this type.

CASE REPORT

A police officer, aged 33, was struck by an automobile. On admission shortly after he showed fractures of the bones of the left forearm, left femur and tibia. He was conscious with only slight signs of shock. The fractures were set and the patient appeared quite comfortable; pulse 116, blood pressure 110/68, temperature 98. Blood count on the following day was white blood cells 27,000, 80 per cent polymorphonuclears, hemoglobin 85 per cent, red blood cells 4,000,000. Temperature rose to 104 with pulse at 122. Patient felt comfortable and general condition was good. He was apparently making a good convalescence when suddenly on the third day he went into shock, became dyspneic, cyanosed, pulse weak and thready and in a very few minutes he lost consciousness and developed repeated clonic and tonic convulsions. His condition became so grave that death was considered imminent in spite of all stimulants. In desperation he was put in the respirator with connected oxygen tent. The respiration became synchronized with the machine in a few minutes and the patient immediately showed striking improvement; color returned and heart action became good. He was kept in the respirator for twelve hours after which consciousness returned. He was removed

from the machine and made an uninterrupted recovery. Free fat in the blood was demonstrated at the onset of the symptoms and again twenty-four hours later.

The renal form presents less definite symptoms; a varying degree of pain in the kidney region may be present and in extensive cases a reduction in the urine output. Examination of the urine shows some red blood cells and fat; however this examination must be surrounded by the precautions previously described.

The occurrence of mesenteric emboli has not been stressed in the literature; but, recognizing the frequency of other forms of mesenteric embolism, one should consider fat embolism of the mesenteric vessels as an explanation of some obscure cases. The following history may belong in this group and is presented in order to direct thought to this possible complication.

CASE REPORT

A boy, aged 10, previously well, suddenly developed violent pain in the abdomen which persisted over a period of thirty-six hours with occasional short periods of relief. He became prostrated and temperature dropped to 96. Examination a few hours after the onset showed the child apparently in shock. He was pale, circulation was weak, temperature 96, slight general abdominal tenderness but no definite mass could be demonstrated. On further questioning it was established that the boy had incurred a very painful injury to the thigh the previous day and the thigh was still swollen and tender. Blood examination showed a white count of 19,000 and a moderate anemia. Hemoglobin 71 per cent, red blood cells 3,600,000. Abdominal pain gradually disappeared in the next thirty-six hours but recovery of strength was very slow. There was an unusual degree of constipation and an unexplained anemia which became more pronounced after a few days and then slowly improved. A possible explanation of mesenteric fat embolism secondary to the injury is offered.

Constitutional symptoms (b) consist of irregular fever which may follow a subnormal temperature during the early stage of shock. The temperature curve runs a very confusing course which can not be explained by local findings. Blood cultures remain sterile. Where recovery occurs temperature drops after a varying period.

An important finding is a progressive anemia of unexplained origin. This anemia may be so severe that internal hemorrhage is suspected. Coincident with the anemia is a rise in the icterus index. As the patient improves the anemia clears up and the icterus index drops rapidly. In one of our cases the icterus index rose within ten days to 25 then to 33, accompanied by jaundice. The following case history illustrates the described complication.

CASE REPORT

A pilot, aged 32, previously well, was badly injured in an aeroplane crash. He was exposed in the wrecked plane for five hours before he was found and brought to the hospital from a distance of twenty miles. General condition on admission was good but he had compound fractures of both legs, one arm and the maxilla; temperature 103, pulse 140. High temperature persisted about two weeks. A few days after the injury he developed a progressive anemia; hemoglobin dropped from 78 per cent to 66 per cent, red blood cells from 4,500,000 to 3,200,000; on the third day hemoglobin was 50 per cent and red blood cells 2,400,000, which persisted with slight fluctuations in spite of repeated transfusions for two weeks; then the blood count gradually came back to normal. Icterus index rose to 10. There was free fat in the circulating blood, demonstrated twenty-four hours after the injury and again on the fourth day. The local conditions were uncomplicated and there was no explanation for the febrile course and the anemia referred to except the entity previously described as the delayed form of visceral fat embolism. The patient made an uninterrupted recovery.

A possible explanation of the anemia may be the constitutional upset from the embolic lesions, but the more probable explanation is the presence of some hemolytic agent which is freed by the splitting up of the circulating fat.

THERAPEUTIC CONSIDERATIONS

The treatment may be divided into the preventive and the curative. Many measures have been suggested to prevent fat embolism, such as ligation of the thoracic duct, a tourniquet above the injured areas and free drainage of the fracture sites. All these measures have proved unsuccessful. All writers agree that the most important measure is careful handling of the patient after injuries and during operations, avoidance of manipulation of injured parts and great care during transportation.

No successful curative treatment has been found. However, it is the opinion of writers

that sudden death in these cases is largely the result of vasomotor collapse rather than actual damage of the affected organs. It is agreed that the circulating fat and the fat in embolic areas is absorbed after a relatively short time without permanent damage. Therefore effort should be directed to tide the patient over during the critical period of collapse, which is especially an accompaniment of extensive brain and myocardial embolism. With this idea in mind we employed the Drinker respirator immediately after the onset of severe symptoms of embolic shock. With this measure in three instances the patients who were expected to die were carried over the critical period and recovered.

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COMPLICATIONS OF APPENDICITIS

A REPORT OF 600 CASES

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ST. LOUIS

Appendicitis is encountered more frequently than any other surgical condition of the abdomen. For this reason it is apt to be considered too lightly by the occasional operator. We agree with Bowers⁶ that there is no operation in the whole field of general surgery in which surgical judgment and skill are of more paramount importance.

Mortality tables show that over 18,000 persons die yearly from appendicitis in this country, or 15 per 100,000. In Great Britain, Belgium and Germany 7 per 100,000; in France, Italy and Spain 3 per 100,000. It has been calculated that the mortality rate of appendicitis in the United States approximately equals the combined mortality of intestinal obstruction, gastric and duodenal ulcer and gallbladder disease.

McDonald⁴ estimates the deaths from appendicitis to exceed the number caused by ectopic

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pregnancy, pyosalpinx, gallbladder disease, pancreatitis, splenic and thyroid disease combined.

Maes, Boyce and McFetridge¹ state that "it is exceedingly difficult to prove anything about the death rate in appendicitis except that it is almost as high today as it was nearly fifty years ago when Fitz, the internist, first described appendicitis as a surgical entity and Morton, the surgeon, first deliberately performed an operation for it, and they believe that continued high mortality is at least partially to be traced to the tendency of the medical profession to consider the disease in the light of a solved problem, and as a consequence, to devote too little and not too much attention to it."

Maes² quotes Bowers' review of 6123 cases from twenty-seven hospitals showing a mortality of 11.29 per cent with all types of surgeons and all types of the disease.

Finney⁸, reporting 3913 operative cases in one hospital during thirty years with sixty surgeons and thirty-nine house surgeons gives a general mortality rate of 2.323 per cent.

Taylor and Schmidt⁷, reporting 1049 cases at the Wisconsin State Hospital from 1923 to 1931 inclusive showed a mortality of 1.9 per cent in all cases with mortality of 4.1 per cent among the acute cases.

Carl Black⁵ studied 52 reports of 83,144 operative cases of appendicitis by fifteen hundred surgeons in one hundred fifty hospitals and gives the average mortality as follows:

Cases not specified as to type, 3.98 per cent.
Acute cases, 4.55 per cent.
Chronic cases, 0.99 per cent.
Suppurative cases, 10.15 per cent.
Gangrenous cases, 8.73 per cent.
Spreading peritonitis, 21.19 per cent.
General basic mortality, 5.5 per cent.

Here is presented (see chart 1) a series of 600 appendix operations done personally by the author in ten different hospitals since 1921. There are 205 acute cases with a mortality of 3.41 per cent, 260 subacute and chronic cases showing a mortality of nil. Since Deaver has said that laparotomy is a two organ operation we have included 135 laparotomies in which it was thought advisable to remove the appendix with a 2.22 per cent mortality. The general

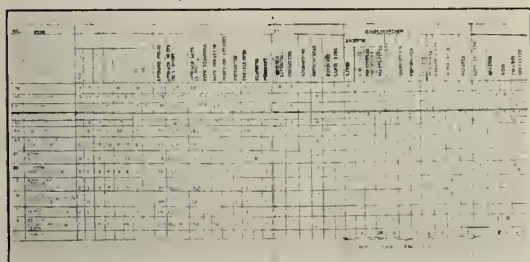


Table 1. Familial Factors in Etiology of Appendicitis

Identification	Relationship	Age	Date of Operation	Condition of Appendix	Remarks
B 2335	Sister	20	3-3-24	Acute, ruptured	Frequent tonsillitis
B 2384	Brother	12	3-5-24	Acute, purulent	Frequent tonsillitis
M 28509	Sister	22	1-30-28	Retrocecal, adhered	Tonsillitis
C P.					
C	Father	29	9-15-24	Acute gangrenous	Tonsillectomy 1921
C	Mother	28	3-15-25	Ruptured, abscess	Frequent tonsillitis
B 12-8	Son	5	10-5-33	Acute, Jackson veil	Tonsillitis, frequent
B 1262	Son	5	10-5-34	Right inguinal hernia; retrocecal with Jackson veil	Frequent tonsillitis
B 6659	Brother	19	9-18-26	Acute, retrocecal	Tonsillectomy, aged 3
B 6904	Sister	33	9-27-27	Chronic, recurrent	Mastoid operation, 1926
B 2157	Sister	18	3-27-23	Subacute; coprolith	Recent influenza attack
B 6699	Sister	18	8-20-26	Chronic; Jackson veil	Tonsillectomy, 1924
M 27154	Father	34	12-22-26	Recurrent, chronic, retrocecal and very adherent	Tonsillitis
Be 15173	Son	1	6-1-31	Acute, Jackson veil	
M 312561	Brother	16	6-22-31	Chronic recurrent, Jackson veil	Tonsillitis
M 34-3969	Sister	16	11-8-34	Chronic recurrent, Jackson veil	Calcified non-tubercular. Lymph nodes in mesocecum. Frequent tonsillitis
M 282132	Brother	16	5-31-28	Chronic recurrent adhered to cecum	Frequent tonsillitis
M 272888	Sister	19	7-17-29	Chronic retrocecal	Mastoid operation at 8 years
M 273932	Brother	23	11-7-27	Acute, gangrenous perforated	Pneumonia at 14
M 282691	Brother	27	7-7-28	Chronic, adhered to cecum	Had tonsillectomy
M 304562	Daughter	12	10-30-30	Acute, gangrenous	Frequent sore throat
M 273736	Brother	16	10-29-27	Acute, suppurative	Empyema as child. Recent abscessed tooth
M 281122	Sister	19	3-16-28	Subacute, recurrent	Had adenoidectomy
M 302031	Daughter	22	5-8-20	Chronic, adhered recurrent	Calcified glands. Non-tubercular tonsillectomy, at 10
M 331625	Mother	55	4-28-33	Acute purulent	Thyroidectomy at 51
M 30733	Nephew	7	2-10-30	Ruptured, abscess	Tonsillectomy at 6
M 314214	Uncle	47	10-20-31	Retrocecal, adhered, chronic	Frequent tonsillitis
M 34220	Uncle	47	1-10-34	Retrocecal, adhered, chronic	Frequent tonsillitis
M 333657	Brother	9	10-6-33	Acute, retrocecal, purulent	Frequent tonsillitis
M 34-3084	Brother	8	8-28-34	Chronic retrocecal	Frequent tonsillitis; non-tubercular glands in meso-appendix; history, one sister died from appendiceal peritonitis years before. Father had ruptured appendix, peritonitis and residual abscesses at 18; 17 uncles, aunts and cousins operated on for appendicitis
B 6640	Brother	10	8-24-30	Acute, ruptured, diffuse peritonitis of 4 days' duration	Died. History of frequent sore throat
B 0507	Sister	10	11-2-31	Acute, adhered	Frequent sore throat
J 10061	Sister	13	3-2-23	Ruptured, abscess	Appendix in situ. History of tonsillitis
M 282709	Sister	16	7-28-23	Obstruction, acute peritonitis	Appendectomy and ileostomy. Died
			7-10-28	Subacute, adhered. Recurrent	Frequent tonsillitis
D D-M	Brother	28	3-9-35	Subacute, adhered. Recurrent	One brother had appendix abscess with fecal fistula one year. One brother appendix abscess and postoperative hernia; one sister acute appendicitis with operation; one sister recurrent symptoms of appendicitis.

found them relatively more often in abscessed cases. It is essential to remove the coprolith found free in the abscess, otherwise the drainage will be prolonged. In one abscess the presence of a coprolith resulted in the identification and removal of the appendix.

In three chronic cases showing an atrophic sclerosed appendix which seemed hardly sufficient to account for the patient's frequent crampy pain attacks, microscopic examination later revealed multiple neuromata or perineurofibroma which (figure 1) explained the etiology of the pain in such patients.

Bowers¹⁰ offered evidence that the number of appendicitis cases, the death rate and the frequency of peritonitis were high in summer.

Mills¹¹ attributes the frequency of attacks to weather changes.

It is our opinion that the appendix is attacked by the bacteria carried through the lymphatics primarily; by the blood stream in the case of streptococcus especially, and seldom if ever by direct infection from the fecal stream.

Complications.—Maes, Boyce and McFetridge³ reporting 250 cases of acute appendicitis in children show a mortality of 19 cases or

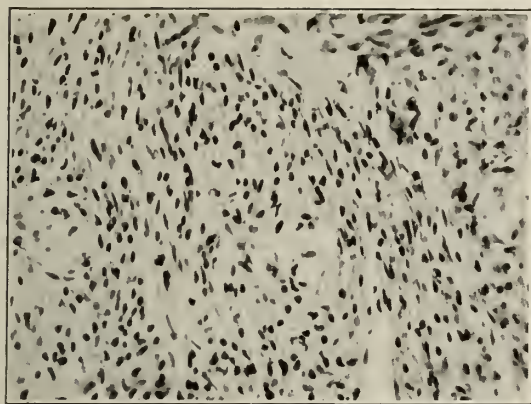


Fig. 1. Neuromata in a case of chronic appendicitis in which the macroscopic appearance of the specimen did not explain the pain symptoms.



Fig. 3. Illustrating abundant lymphoid tissue in case of chronic recurrent appendicitis.

6.04 per cent with complications listed as fecal fistula 3; hematoma of wound 4; bronchopneumonia 4; sinus arrhythmia 1; edema of scrotum 1; rectal hemorrhage 2; ileus 1; culdesac abscess 1; evisceration with repair 1.

In all but six cases operation was done promptly and in two of these death occurred. They advised immediate operation as the wiser plan in children just as it is the wiser plan at any age.

Taylor and Schmidt⁷ reported 358 cases of acute appendicitis from the Wisconsin General Hospital over a period 1923-1931 inclusive and showed that one tenth of the patients had complications and that they were six times as likely to occur in the ruptured as in the unruptured ones. They found that a cathartic raised acute appendicitis mortality by one half and more than doubled the number of ruptured cases with an attendant mortality of 16 per cent. Their fatal complications were: Pulmonary embolus 2; phlebitis 3; coronary sclerosis 1; anesthesia 1; pneumonia and septicemia 1; general peritonitis with pneumonia 2; general peritonitis 5; in extremis 1.

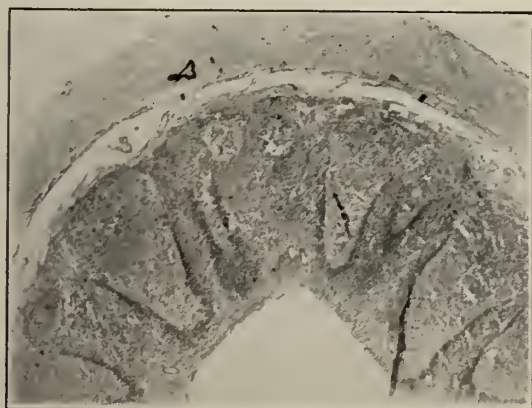


Fig. 2. Showing preponderance of lymphoid tissue with acute hyperplasia.

We might state here that only 16 of our 205 acute and 83 subacute cases gave a history of receiving a cathartic and at no instance on the advice of a physician. This might have been a different story only a few years ago. It may be an indication that the frequent warnings against the use of cathartics in acute abdominal conditions are being heeded both by physicians and the public.

Our complications in the 600 cases numbered 66 or 11 per cent. Spreading or diffuse peritonitis led the list with 28 cases. This condition was present at the time of operation and can hardly be classed as a postoperative complication. Eighteen of these followed gangrenous condition of the appendix. Fatal cases from this cause numbered four, three of which were practically moribund on admission; and despite the great detriment to one's mortality statistics there is always the feeling or hope that the patient is being given the one chance against almost certain odds, notwithstanding the arguments for conservatism. We feel that in none of these four patients would the process have localized. With 24 other peritonitis cases from appendicitis recovering after immediate operation we see no definite reason for changing our policy in the handling of this type of case. We feel the only instances in which delayed operation is permissible are in those cases with palpable mass or those in which the diagnosis is questionable.

Kidney pelvis infections with or without ureteral stone were present in ten cases. There was a history of ureteral colic with passage of stone in four patients two of whom, one a physician, it was my privilege to see in consultation during these ureteral attacks and from whom we removed a gangrenous and an acute suppurative appendix, respectively, about one year later. The only divergence in the symp-

tomatology was a definitely slower pulse rate and contraction of the spermatic muscle during the ureteral attacks. Another patient, also a physician, passed a gravel and bloody urine two weeks after removal of an acute friable appendix. A young woman suffered ureteral attack with passage of stone three weeks after a pregangrenous appendectomy. One case was diagnosed by the urologist as multiple intramural abscesses when a kidney mass appeared during convalescence from operation for an acute suppurative appendicitis proved to be such by pathological section. The other kidney complications were pyelitis dating from childhood.

The surgeon is often criticized for removing the appendix unnecessarily when subsequent kidney attacks occur. When there is any doubt pyelograms or at least flat roentgen ray plates are advisable but one should not obscure the fact that the two conditions may coexist.

Many times pus cells are found in the urine during an attack of appendicitis. We have heard this explained on the basis of contiguity of the inflamed peritoneum to the ureter. We hold the opinion that the pus cells are in the urine just as they are present from other foci of infection.

Seven of our cases showed some hemorrhage from the bowel with the first defecation; none was serious and beyond the fact that blood frightens every one as is often quoted from Osler, no harm resulted.

Postoperative hernia resulted in six cases or 1 per cent; four of these were the result of infection while two came from over-exuberance on the part of the patients and their failure to follow postoperative instructions.

Five cases of thrombosis were encountered. One, involving the mesenteric veins in a case of streptococcal appendicitis having onset with diarrhea, ended fatally. The other four were of the long saphenous, one bilateral. These cleared up promptly with no untoward results.

There was one case of organic ileus occurring three months after drainage of an appendiceal abscess. At the second operation appendectomy and ileostomy were done but the end result was fatal.

Liver abscess developed and was drained in one case two weeks after a gangrenous appendix was removed from an incarcerated inguinal hernia. General peritonitis present. This patient died and pyelephlebitis was found at post-mortem.

Residual abscesses developed in two patients having general peritonitis at operation. One in the left iliac fossa necessitated secondary incision. The other developed in the culdesac of a small child one week after appendectomy and drainage. It was accomplished by an un-

controllable diarrhea as described by Bowers¹⁰ and was found by rectal examination. It drained out through the original wound. We believe this was facilitated by the use of heat, the prone position and waiting. It was likely the result of too early removal of the rubber dam drain.

There were two postoperative pneumonia and one cardiac deaths in the series. Two patients developed extensive abdominal wall abscesses, one in an acute suppurative case the other in a chronic recurrent case who also showed a persistent pyelitis and was referred by the urologist for appendectomy. Postoperative hernia resulted in both instances.

One adult male had an inexplicable chill three days after operation for acute suppurative appendicitis. During his second chill blood smears revealed the plasmodium of malaria from which disease he had suffered in earlier years.

TREATMENT

The principles of minimum trauma to the peritoneum, the value of fluid replacement, the advantage of the Fowler position and, most essential, benefit of the prone position in drainage cases have served to keep down the mortality rate in this series of cases.

Immediate operation was done on all the acute cases. The type of incision has varied. The gridiron type over McBurney's point in the majority of acute cases has proved very satisfactory. Gas anesthesia has been used almost exclusively.

Because of the hazard of spreading infection or secondary hemorrhage the appendix was left in situ in three of twenty-five abscess cases. One death occurred in this group, a mortality of 4 per cent. Finney⁸ reported 438 cases with rupture and abscess with a mortality of 4.57 per cent while Love¹⁴ who advocates conservatism in handling acute appendicitis shows a 4.5 per cent mortality rate in the abscess cases.

Drains have been employed in all pus cases and in every other case where doubt as to their necessity was present, the number depending upon the spread of the infection. Only soft rubber dam is used. These drains are removed in from 24 to 96 hours. We have never used gauze packs as drainage material and they are used for walling off in the peritoneum as infrequently as possible.

Yates¹³ showed the futility of trying to drain the peritoneal cavity by cigarette drains or tubes made of gauze.

Opiates are used freely for 48 hours after operation and longer in the peritonitis cases. Sips of hot water are given immediately and increased if there is no vomiting. Frequent

gastric lavage is used in peritonitis with vomiting and ample intravenous fluids are given.

With the drainage case kept on the abdomen the patient's own body weight prevents the overdistension of the intestinal coils which is so dangerous a factor in paralytic ileus.

Secondary operations have been done in four cases, viz., incision of liver abscess, incision of a secondary residual abscess, enterostomy for obstruction, repair of postoperative hernia.

CONCLUSIONS

1. It is possible to reduce the rather high mortality rate in appendicitis.

2. While there are instances when the conservative treatment is justifiable, nevertheless we have found the immediate operation very satisfactory.

3. Complications occurred in 11 per cent of the series of 600 cases. Sixty per cent of complications proved fatal. Spreading peritonitis accounted for four of the ten deaths. Postoperative pneumonia 2; mesenteric thrombosis 1; bowel obstruction 1, and cardiac failure 1.

4. We believe the tonsils to be the atrium of infection in the majority of the cases and that the relative abundance of lymphoid tissue in the appendix is a large factor in the frequency of its disease.

5. Our experience has prompted us to believe there may be a familial factor in the etiology of appendicitis and it may likely be connected with a preponderance and persistence of lymphoid tissue in certain families.

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A STUDY OF THYROIDECTOMIZED PATIENTS

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In this paper I am endeavoring to consider only those cases which have had thyroidectomies performed for various degrees of hyperthyroidism. I am not including in this simple division of thyroids, ligations, simple goiter or adenomas.

It is apparent that the majority of these operated cases appear to have reached a stage of well being. However, a minor percentage of cases which complain of various symptoms and seek relief from their ailments that requires unusual care and treatment, will be discussed.

Crile in his "Clinical Analysis of 20,000 Operations on the Thyroid Gland" states that 10,125 were performed for hyperthyroidism. As for the end results in this series, 80.9 per cent were reported to be in good condition and 17.1 per cent in fair condition one year or more after the operation was performed. It is in these 17.1 per cent of cases that consideration of treatment, observation and reeducation is an absolute necessity. At this period I would like to give a brief résumé of symptoms of hyperthyroidism thereby giving a better knowledge of how to control postoperative symptoms.

The symptoms and signs of hyperthyroidism are too well known to warrant more than mention here: thyroid enlargement, nervousness, tachycardia, sweating, tremor, loss of weight, dyspnea, fatigue, increased basal metabolic rate, and the power of thyroid secretion to lower blood cholesterol. Since the basal metabolic rate is not a true index of metabolic process, I feel that blood cholesterol is more definite and deserves more consideration. This serological change is important because of its fluctuations during the active stage of hyperthyroidism and again after operation, and a deciding factor in the period when the patient is convalescing.

The relation of blood cholesterol to thyroid function has been well established by many workers. In hyperthyroidism the blood cholesterol will be consistently below the normal value of 125 to 200 mg. per 100 cc. of blood. This test permits the differentiation of true myxedema from other conditions which produce a minus metabolism but which, nevertheless, would not be benefited by the administration of thyroid extract. In hyperthyroidism the decrease in blood cholesterol is less and definitely proportionate to the intensity of the hyperthyroidism.

Brazier of England has developed a quick and

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convenient method for measuring thyroid activity, an electric method which measures the "impedance angle" of the body to an alternating current. The resistance of the body to a direct current is influenced by the thyroid gland, and Lueg and Grassheim found that the skin varies in thyroid diseases in such a way as to be of diagnostic value.

The manifold functions of the ductless glands; how they are concerned with the differentiation of tissue, with nutrition, growth, and with mental development, both intellectual capacity and personal make-up, also have to be considered.

The symptomatology of thyroidectomized cases is of great interest, as these manifestations are just, and should so be considered. It is well recognized that following thyroid operations for hyperthyroid cases postoperative reactions almost always occur and are seldom so mild as to be negligible. There is usually a slight rise in pulse rate starting during operation and continuing to increase for some hours. The tachycardia persists near the maximum rate for about forty-eight hours, then falls slowly reaching the preoperation rate after three to four days. The temperature rises sharply after operation but falls to normal sooner than the tachycardia. There may be restlessness, excitability, increase in tremor, gastric disturbances and auricular fibrillation. The subjective feelings of the patient usually improve some days before the pulse rate falls appreciably. Weight is gained from about the end of the first or second week and increased steadily from one to three pounds. This gain may be unduly great because of the extra strain on the cardiorespiratory apparatus. In time there is usually a gradual diminution, the final weight approximating normal. The tremor, muscular weakness and incoordination disappear.

Then there is a stage of relapse. After the patient returns home some of the symptoms may occur within from two to four months. It is only when cases have been watched very carefully for a prolonged period and they have shown complete freedom from all symptoms that the stage of apparent cure has been reached. However, in case of very severe mental upset or continual gastric irritation or disturbance the symptoms may recur. Finally, the stage of complete cure is the condition in which the patient is not entirely free from symptoms but can apparently be subjected to all normal shocks and disturbances without fear of recurrence.

Medical treatment is usually sufficient to overcome the symptoms. This period of instability seems to last from two to four years. In this period of instability definite mental and physical manifestations occur. Other glandular

dysfunction may result from thyroid operation. Numerous writers upon this subject assert that mania and psychosis are occasionally serious and even fatal sequelae of thyroidectomy. Then, because of these mental and physical manifestations it is not to be assumed that one is dealing with a disease entity, but rather a symptom complex which needs diagnosis. This symptom complex varies with the individual but its definite nature entitles it to a name and on account of its complexity it is best to consider it as a syndrome, a thyroidectomized syndrome, because the emotional and temperamental phases are extremely valuable as the guiding factor to the ultimate results and the adaptability of the patients to their environment.

Many failures in diagnosis of thyroidectomized patients result in nervous patients because of the eager search for somatic disease, in which the inseparable relation of mind and body is too often forgotten. This structural relationship of mind and body is evidenced by the fact that the mind has conscious control of the body in relation to its environment through the central nervous system which is intimately bound up with the vegetative nervous system and has reciprocal relationship with the glands of internal secretion.

The symptoms of thyroidectomized syndrome are evidenced by enlargement of the pituitary, and the anterior lobe contains many colloid filled vesicles; the temperature of the body is lowered, the skin is thickened and the hairy covering is imperfectly developed. In adults thyroidectomy raises the limit of assimilation of carbohydrates and lowers blood sugar. The muscles lose tone and are weakened. Muscular activity is decreased. Regeneration of tissues is retarded and anemia is usually produced. Heat production is decreased and the power of heat regulation is impaired, the body temperature is lowered. Consumption of oxygen and excretion of carbon dioxide are both decreased. Cameron says there seems to be little doubt as to the general truth that the thyroid principle exerts an influence on the oxidation process in all the cells of the body and thus produces its physiological effects. The sexual functions are depressed. The nervous system is affected, with production of dullness and apathy. The skin is dry and the hair texture is changed. The finger nails become brittle. Headache is a common symptom with nervousness and irritability, vertigo, visual disturbance. Nausea and vomiting, as well as heat flashes, following coldness and clamminess occasionally are complained of.

An increasing body of evidence points to the anterior lobe of pituitary as the source of substances which control the thyroid, its growth and its secretory activity. Experimental exophthal-

mos is apparently caused by a pituitary action, being readily produced by pituitary injections in thyroidectomized animals. Clinical observations also indicate that a pituitary-thyroid relationship exists in the human subject. As for gastric disturbance, Lahey states that following partial thyroidectomy 10 per cent showed achlorhydria.

In the management of thyroidectomized patients all foci of infection, endocrine or metabolic disorders, and organic disease must have adequate treatment. Proper symptomatic treatment is indicated.

The clinical application of thyroid therapy is a large subject and is beyond the scope of the present article. There is no standard form of treatment, consequently the best judgment must be used in each individual case. My experience in over one hundred thyroidectomized cases shows that endocrine extract is generally advocated to prevent recurrence and for the control of all manifestations that may occur in preference to Lugol's solution or any other form of iodine medication. Iodine is preeminently an endocrine stimulant and a vital mineral food. In thyroidectomized cases one does not seek stimulation but a uniform process equalization of the partial remaining thyroid and its subsequent pluriglandular balance. Equally logical is the administration of thyroid therapy following total thyroidectomy. More important than these, from a numerical standpoint, is the wide variety of clinical conditions in which thyroid administration is indicated, either alone or in conjunction with other treatment. Charles H. Mayo says that after he became interested in this subject several years ago he has learned of no single abnormal condition not a cause of death in which the patient receives so much benefit and is brought up to normal so quickly as in the treatment for thyroid deficiency.

SUMMARY

1. Considering those cases which have had thyroidectomies performed for various degrees of hyperthyroidism.

2. The relation of blood cholesterol to thyroid function has been well established by many workers. Since the basal metabolic rate is not a true index of metabolic processes, I feel that blood cholesterol is more definite and deserves more consideration.

3. The symptomatology of thyroidectomized cases are best understood by the internist for his knowledge of endocrinology.

4. Because of the complexities of symptoms it is best to consider it a syndrome, a thyroidectomized syndrome.

5. Many failures of diagnosis of thyroidectomized patients is the eagerness for results with-

out considering that one is dealing with a thyroidectomized syndrome.

6. The clinical application of treatment of thyroidectomized syndrome in over one hundred cases the best results were obtained by the use of endocrine extracts.

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FEVER THERAPY OF MYCOSIS FUNGOIDES

Joseph V. Klauder, Philadelphia (Journal A. M. A., Jan. 18, 1936), presents data from which it appears that an acute infection favorably influences the course of mycosis fungoides. Of five cases of this disease treated with inoculation malaria, here reviewed, the results were favorable in four. Malarial therapy apparently does not cure mycosis fungoides; it produces, however, a distinct effect on the disease, an effect greater than treatment ordinarily employed, such as arsenic and roentgen therapy. The future therapy of the disease may be the employment of all these methods. Observations are too incomplete to evaluate the therapeutic efficacy of fever produced by electrical methods. From the evidence presented it appears that fever caused by an infection is superior. If the electrical method of producing fever is employed it would seem more desirable to combine such therapy with the injections of non-specific proteins, notably vaccines intravenously, in order more closely to simulate the changes that are caused by a systemic infection. Reference is made to the stimulation of the reticulo-endothelial system by injections of antigenic substances and the rôle that such a system plays in the defensive mechanism of the body. The concomitant injections of antigenic substances with fever therapy are in accordance with the hypothesis of Jacobsen that the reticulo-endothelial system, when sufficiently active (as when stimulated by one or a number of acute infectious processes), may attain in a measure the ability to cope with neoplastic diseases in a similar if not an identical manner.

MENSTRUAL DYSFUNCTIONS

A REVIEW OF TREATMENT BY GLANDULAR
THERAPY

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The most interesting advances of endocrinology in the last few years have been with reference to gynecological problems, especially problems concerning reproduction and the menstrual cycle. This new field of thought has stimulated innumerable experimental investigations resulting in a better understanding of the possible causes of menstrual dysfunction and relegating many of the past theories into the discard. It has also made possible the application of endocrine therapy to these problems. Therapy along these lines has proved on the whole disappointing. I shall attempt, however to determine the causes for this seeming failure, even though we are able to approach the problems of menstrual disturbances more intelligently. Before entering into an explanation as to the possible causes of these dysfunctions and the treatment that is suggested in these cases, I shall first give a rather detailed discussion of the hormonal factors that produce the normal phase. An imbalance of these hormones, or an underdevelopment or overdevelopment of them produces the dysfunctions under discussion.

First, let us consider the immature ovary of the prepubertal period. During infancy, the graafian follicles with their ova lie embedded in the tissue stroma close to the external surface of the ovary. These follicles are small in size, and as the child progresses the follicles gradually enlarge and seek a deeper level in the stroma. By the time adolescence is reached the follicles are greatly enlarged as a result of the increased epithelial cells as well as the formation of liquor folliculi. By this time they are embedded deeply within the substance of the stroma, and as they continue to grow they find their way to the surface of the ovary. During this entire time the ovary remains latent, the amount of the hormone elaborated being very small. However, as puberty is approached there is sufficient hormone to produce certain developmental changes, both physical and mental, yet insufficient to produce puberty itself. That the hypophysis exerts its activating influence during this time is highly probable. For example, we know that follicular growth is seen before puberty, which in itself is suggestive of hypophyseal activity. We also know that if the hypophysis is removed the ovaries

cease to develop. Furthermore, an increased amount of the anterior hypophyseal hormone will produce puberty signs long before normal term. This has been demonstrated by implanting the anterior hypophysis into immature animals and resulted in the ovaries becoming immediately activated to maturity. In the human, cases of precocious puberty is a good example. Novak¹ reported cases of granulosa cell ovarian tumors which produced an excess of the female sex hormone and thereby pubertal changes, as fullness of breasts, prominent nipples, pubic and axillary hair, normal puberty appearance of the external genitalia and an increase in the size of the uterus. Bennett² has also reported a similar development in a girl of four, who has been menstruating every twenty-eight days since five months of age and in whom was palpated an enlarged left ovary, probably an ovarian cyst. This indicates that the immature ovary is capable of being stimulated to maturity, but apparently receives only a mild stimulation from the anterior lobe during the prepubertal period. That the anterior lobe is only mildly potent in early life has been demonstrated by implanting into an animal the hypophysis of an immature animal which resulted in a slight degree of stimulation. Thus it is felt that the stimulation for the development of the ovary is from the anterior hypophysis and that its influence is exerted even in infancy, slowly guiding the developing ovaries to puberty, at which time both the anterior hypophysis and the ovaries assume their more complicated duties. The amount of the follicular hormone, estrin or folliculin, is increased with the development of the ovaries, the amount of estrin being negligible during infancy and more demonstrable later. With the advent of puberty the ovaries reach maturity and assume their new role of ovulation and luteinization, resulting in anatomical changes manifested in the development of the secondary sex characteristics and later the production of the menstrual cycle.

We have mentioned the influence of the anterior hypophysis upon the ovary. We are principally concerned here of its effect during maturity. It has been demonstrated by experimentation upon hypophysectomized animals that ovarian atrophy follows this procedure. It has also been shown by Smith in 1926 that daily grafts of the anterior lobe substance into these animals overcomes the atrophy and re-establishes the estrus cycle. It is apparent, therefore, that Aschheim and Zondek's reference to the anterior pituitary gland as the motor of the ovary is well phrased. Without this gland the ovary is absolutely inactive. The hormone elaborated by this gland in producing

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ovarian activity is the gonad stimulating hormone, the anterior pituitary sex hormone.

Whether the sex hormone, which is derived from the basophilic cells of the anterior pituitary gland, consists of a single hormone or of two hormones is still debatable. The two phases of ovarian action, ovulation and luteinization, are held by some to be the result of a quantitative difference of this hormone, the smaller amount producing ovulation and the greater amount luteinization. For example, it is found that when immature rabbits receive a small amount of an aqueous extract of the anterior hypophyseal tissue there develops maturation of the ovaries, which is characterized by the presence of graafian follicles and normal corpora lutea. And when an excessive amount is injected the maturing graafian follicle is converted into lutein tissue before ovulation occurs so that the ovum remains embedded in the lutein tissue. The other theory is, that there are two fractions of the anterior pituitary sex hormones, Prolan A, the follicle stimulating or ovulation hormone, and Prolan B, the luteinizing hormone. For the sake of clarity, I shall disregard the division of the sex hormone and refer to it only as the anterior pituitary sex hormone. This leads us now to a discussion of the menstrual cycle itself.

To start the cycle the sex hormone stimulates the growth and maturation of the ovarian follicle. As the follicle grows to maturity it produces the ovarian hormone, estrin, the amount of estrin increasing with the development of the follicle. This new hormone acts specifically as a growth stimulant to the uterine mucous membrane producing endometrial growth and hyperemia. The response of the endometrium to estrin stimulation has not only been demonstrated by animal experimentation but is readily demonstrated by histological study of the human endometrium. Because of the histological changes of the endometrium throughout the entire cycle, the menstrual cycle is divided histologically into four stages, viz.: First, the resting or postmenstrual stage which includes the first four days immediately following menstruation; second, the interval stage which includes the next ten days and is a continuation of the resting stage; third, the premenstrual, pregravid, or progestational stage which includes the last ten days prior to flow; fourth, the destructive stage or period of flow.

We are concerned at the present time with the first two periods, the resting and the interval stages, because of endometrial response brought about during this time by estrin influence. At the start of the resting stage the endometrium is denuded down to the basal layer, the compact and spongy layers having

been shed during the destructive stage. Under the estrin stimulation repair sets in immediately,³ the epithelial surface being completely repaired in forty-eight hours and signs of proliferation started. This is the beginning of the so-called proliferative phase of the endometrial cycle and is characterized by a thickening of the thin mucous membrane present at this time and an increase in the number of glands. During the interval stage the estrin stimulation is increased and the endometrium continues to be stimulated to increased hypertrophy. Later in this stage the mucosa is differentiated into three layers, a compact, a spongy and a basal layer. The first two layers are known as the functional layer and is most concerned with the cyclical changes. The basal layer, which takes a very small part in these changes, serves as a source from which the mucous membrane is regenerated after the sloughing of the functional layer during menstruation. The mucosa at this time is much more thickened, the glands are much more numerous and compact. The glands are also more elongated and retain their tubular form. Along with the hypertrophy and increased glandular structure there is also an increased vascularity of the entire mucosa. This proliferative phase continues until the full development of the follicle is reached. At this stage the follicle ruptures and the ripened ovum is released; in other words, ovulation has taken place. The advent of ovulation terminates the proliferative phase of the endometrial cycle.

In regard to the period of ovulation a few remarks are in order. Ovulation is restricted to the intermenstrual phase, the time of ovulation varying with the cycle. For example, if the cycle is shorter, ovulation occurs earlier. In a normal cycle of approximately twenty-eight days, ovulation is restricted to about the fourteenth day. Shaw⁴ has given an interesting report as to his observations from gynecological operations with reference to the time of ovulation. Before proceeding with the operation he obtained accurate data as to the first day of the last menstrual period, the normal cycle of the patient, and utilized this information with his findings at the time of operation. Those cases operated upon on the thirteenth and fifteenth days of the menstrual cycle, the development of the unruptured follicles and the development of the recently ruptured follicles toward corpus luteum formation indicated that ovulation took place on the fourteenth day. He further observed that those patients operated on after the thirteenth day, the later in the cycle the operation was performed the more mature was the corpus luteum. Proliferating corpora lutea were formed particularly

about the seventeenth day. Those specimens examined early in the cycle showed no recently ruptured follicles, and the corpora lutea found were retrogressing. These facts seem to substantiate that ovulation is restricted to about the fourteenth day, and confirms the findings of Allen⁵ and his coworkers who recovered ova from the fallopian tubes of regularly menstruating women, operated upon between the twelfth and sixteenth days of the menstrual cycle. This seems to prove conclusively that ovulation follows in a regular sequence in the menstrual cycle, which knowledge enabled Knaus and Ogino to establish their rule of rhythm with reference to the period of conception and the period of fertility. Following ovulation the walls of the graafian follicle collapse, the granulosa and theca interna cells proliferate and undergo other characteristic changes to become a mature corpus luteum.

The corpus luteum produces even greater amounts of estrin than has previously been produced by its predecessor, the graafian follicle. And along with this hormone a second hormone is elaborated, termed by Corner and Allen progesterin, and by Hisaw corporin. This is the lutein hormone and is found only following ovulation and corpus luteum formation. On the other hand, the estrin is found throughout the entire cycle and in increasing amounts during the latter half of the menstrual cycle. The elaboration of this new secretion from the corpus luteum causes further endometrial changes to take place. The proliferative endometrium previously described is now converted into a secretory or premenstrual phase. This takes place during the premenstrual or pregravid stage of the menstrual cycle. The functional layer becomes even more thickened and more vascular, the stroma undergoes decidual changes and contains considerable nutritive material, such as glycogen. The glands become tortuous and distended and are filled with secretion. The basal layer remains almost unchanged in structure. This transformation of the endometrium from the proliferative to the premenstrual or secretory phase is dependent on the previous sensitization of the endometrium with estrin before the progesterin can exert its influence. For example, if progesterin is injected into a castrated animal, no progestational changes are produced. However, if the endometrium has been previously sensitized with the estrogenic hormone definite progestational changes take place. The change of the endometrium into the secretory phase is essential for maintenance of pregnancy. Without this transformation the fertilized ovum cannot become embedded. If the ovum has not become impregnated the corpus luteum degenerates,

progesterin secretion is eliminated and the endometrial structure that has been built up collapses, and bleeding takes place. The period of menstruation takes place during the destructive stage during which time the functional layer is sloughed off leaving the denuded basal layer. While menstruation is in progress another follicle has started to develop, and a new cycle is in motion.

The question now arising is, what are the factors that produce menstruation? In 1927 Allen and Doisy advanced the hypothesis that menstruation is due to a cyclic reduction of the amount of estrin available in the body. This seems to be the most tenable explanation up to the present time. We have previously mentioned the increased amount of estrin during the development of the graafian follicle and the much more rapid increase in the latter half of pregnancy.⁶ This has been verified by the examination of the blood estrin at different times throughout the menstrual cycle. The blood estrin showed an abrupt increase at the fourteenth day and a considerable accumulation during the premenstrual period until immediately before the onset of menstruation. The greatest accumulation was found to be about one or two days before the onset of the menstrual flow. At the onset of menstruation there was a marked diminution of the hormonal accumulation, thus tending strongly to confirm the above hypothesis. There are numerous experiments to support this contention but I shall mention only one. Allen⁵ and his coworkers experimentally reproduced this condition in spayed monkeys. By injecting estrin daily into these animals they stimulated the atrophied uterine mucosa to a proliferative phase. They then discontinued the administration of this hormone thereby suddenly withdrawing this stimulation. Within a few days there was a breaking of the endometrium and hemorrhage. It is commonly known that if a bilateral oophorectomy is done in the human during the second stage of the menstrual cycle, or if only the corpus luteum is removed at this time, bleeding will result in 36 to 48 hours, the uterine mucosa desquamating as in a normal menstruation. These are only two instances to demonstrate that the sudden withdrawal of estrin will result in hemorrhage. Our next task is to utilize these facts in explaining the theory of menstruation.

We have mentioned that the maximum estrin accumulation is one or two days before the menstrual flow. We also know that the disintegration of the corpus luteum takes place just prior to this. It is obvious that when the corpus luteum degenerates this will be followed by a diminution of estrin production and thus a

drop of the estrin level in the system. The question still remaining is, what causes the corpus luteum to disintegrate?

We know that if a hypophysectomy is done on an animal the corpus luteum immediately disintegrates. It follows therefore that if we can demonstrate a diminished stimulation from the anterior pituitary gland near the close of the menstrual cycle we have the reason for the disintegration of the corpus luteum.

In 1929 Smith and Engle found that the hypophysis of a female guinea pig was weaker in gonad-stimulating substance during estrus, or the period when estrin is high, than in the diestrus period. Hisaw⁷ and his co-workers have shown that by injecting estrin into normal female rats, then implanting their hypophyses into other rats, the gonad stimulating power was greatly reduced as compared to the control animals. This seems to prove that the secretory activity of the anterior pituitary gland is reduced by the estrin. Thus we can infer that when the height of estrin production is reached an inhibition of the anterior lobe is produced which results in a breaking down of the corpus luteum. This in turn produces the drop of the estrin level and menstruation follows.

In summarizing the menstrual cycle briefly, we know that the anterior pituitary sex hormone starts the cycle by stimulating a follicle to develop. During this stage of development the follicular hormone estrin is produced. The estrin produces endometrial growth, the so-called proliferative phase of the endometrial cycle. After the follicle has fully developed ovulation takes place. Changes take place in the ruptured follicle forming a corpus luteum. The corpus luteum produces even greater amounts of estrin and with it a new hormone, progesterin. The endometrium, under the influence of a new hormone, enters into a secretory phase. The increased amounts of estrin causes an inhibition of the action of the anterior lobe resulting in less stimulation to the ovary. A disintegration of the corpus luteum follows. This disintegration results in a fall of estrin, which in turn causes the destruction of the premenstrual endometrium and bleeding. When the amount of estrin falls the inhibiting effect on the anterior pituitary gland ends and again the anterior hypophysis elaborates its sex hormone. This hormone influences another follicle to develop. And thus another cycle is started.

You will note from the above that the bleeding takes place from the secretory phase of the endometrium; in other words, from an endometrium that has been prepared for the reception of a fertilized ovum. This is characteristic of a normal menstruation and should be borne

in mind as other types of bleeding are discussed.

The examination of the menstrual blood⁸ in a true menstruation shows the presence of either uterine epithelium or stroma clumps in 90 per cent of the cases, the uterine epithelium being found in 74 per cent of the cases on the second day of menstruation. The presence of stroma clumps is constant and is extremely characteristic of menstrual blood. In a non-menstrual bleeding the above findings are conspicuously absent. The cases grouped in the anovular type in which either of the above fragments were found, were later found to be borderline line cases and could be classified in the menstrual group. Thus, we find that the bleedings differ so decidedly that they can be readily differentiated by histologic examination, marking another diagnostic difference between ovular and nonovular bleeding.

Before entering into a discussion of menstrual abnormalities and the therapy indicated to correct them, we must stress the importance of a thorough examination in each individual case. The attempt to treat the symptoms without determining the cause is undoubtedly the basis of many disappointments in glandular therapy. It is obvious that in a discussion of this kind we must limit the remarks to functional types of cases; that is, those cases in which there is no evidence of pelvic or constitutional diseases, such as fibroids, malpositions, malignancy, tuberculosis, acute infections, anemia, etc. When making an examination one must note the physical makeup of the individual, the stature, general contour and facial features. An examination must also be made of the hair, teeth, type of fingers, type of hair distribution, fat distribution, secondary sex characteristics, etc., in an effort to determine the endocrine type. One must also bear in mind that the laboratory can be of inestimable value in giving certain data for additional information. For example, a roentgen ray of the sella turcica may be very helpful, or the taking of certain tests, as basal metabolism, sugar tolerance, etc. Examinations which are not frequently done and are of the utmost importance as will be brought out later, are the blood and urine determinations of the estrin level and the anterior pituitary sex hormone content. A histologic study of the endometrium at various times throughout the cycle may be extremely important for an aid to diagnosis. I do not mean to infer that all patients must subject themselves to a thorough laboratory workup; but we must bear these examinations in mind for recourse in the more difficult cases. However, even after a thorough examination is made and the offending factors are determined we are still handicapped because of inability of

obtaining certain glandular preparations. For example, we know that the anterior pituitary sex hormone is of the utmost importance in correcting some of the menstrual dysfunctions because of the dependence of the ovarian activity upon this hormone. Yet there is no true anterior pituitary sex hormone available. The nearest approach to this is the anterior pituitary-like hormone which is derived from the urine of pregnant women. This hormone is found particularly in the early months of pregnancy, reaching its peak at the middle of pregnancy. Some of the available standardized products are antuitrin-S and follutein. The effect of this hormone on the ovaries of an infantile animal in producing ovulation and luteinization is similar to the effect of hypophyseal transplants. The difference lies in that an increased amount of this hormone will produce a proportional increased response to a certain point, after which even ten times the amount will produce no further response. This is not true when the anterior hypophyseal transplants are used. Although the effects of the anterior pituitary-like hormone in animals have been marked the effects in man are not as conclusive.

We have previously mentioned the female sex hormone, estrin, elaborated in the graafian follicle. This hormone has been isolated by Doisy and his co-workers from the urine of pregnant women and called theelin. This hormone has also been found in the follicular fluid, amniotic fluid, placenta and in the blood of pregnant women. Theelin is standardized to contain 50 Doisy R. U. in each cc. It is also available in an oil solution and contains 1000 international units or approximately 300 R. U. per cc. This preparation can be used when large doses are necessary and is thought to have the added advantage of slow and prolonged absorption. Other standardized estrin products are progynon, amniotin, agomensin, etc. The object of estrin therapy is to treat cases with a deficiency of an ovarian hormone. In view of the fact that estrin is produced during the first half of the menstrual cycle, one must bear this in mind when using this product.

Progestin, the corpus luteum hormone, is not available for use. This is a product that gives promise of being of considerable aid in the treatment of menstrual dysfunctions where luteinization is necessary. For the present one must resort to the anterior pituitary-like hormone in large doses to obtain this effect. The results have not been consistent.

The thyroid gland preparations constitute one of the most reliable aids in the treatment of these conditions. It is used especially in dysfunctions where a low basal metabolism is present, as in amenorrhea, menorrhagia, etc. In

cases of obesity where a sterility exists it is also found to be of value.

The object of hormonal treatment in menstrual dysfunctions is to attempt as nearly as possible to simulate the normal cycle. One method is to attempt to stimulate the deficient gland to normal activity; a disappointing method by the use of glandular products. The other is substitution therapy. This method is used when a lessened activity of a gland is causative, producing a deficiency of a hormone. These hormones must be given in adequate amounts and for a sufficient length of time. The amount given must be sufficient to maintain a continuous concentration throughout. Giving a large dose weekly will not take the place of small daily dosages. To ascertain if the hormone is being given in sufficient amounts, future urine and blood studies can be made. Thus one is able to regulate the proper doses in almost every case. From the above discussion one can realize the many pitfalls that present themselves in treatment with glandular therapy, and the close attention that must be given in the more difficult cases. There are certain dysfunctions that respond readily to therapy, but there are others that do not respond even with the closest attention. We shall now enter into a discussion of the causes of various dysfunctions and the treatment that is suggested in each instance.

In 1930 Hartman, Firor and Geiling⁹ reported interesting observations of nonovular periodic bleeding of monkeys in the Carnegie monkey colony. This started a discussion as to whether this can be considered a true menstruation or an abnormal type of bleeding. Their observations covered many years and consisted of many laparotomies, autopsies and innumerable rectal bimanual examinations. They reported that the uterine bleeding during the nonbleeding season takes place periodically without ovulation. The cause of the cyclic bleeding is evidently due to the result of the hormone elaborated by the graafian follicle. There being no ovulation it follows that there is no luteinization and therefore an absence of premenstrual changes of the endometrium. This identical picture can be reproduced in spayed monkeys, as mentioned previously, by giving a course of injections of an estrus product and thereby producing proliferative changes of the endometrium; then withdrawing these injections with a result that bleeding follows from this proliferative endometrium identical to what occurs as described above. This differs markedly from the true menstruation, in that in an anovulatory menstruation the bleeding occurs from an interval endometrium, whereas in a true menstruation it follows the collapse

of a premenstrual endometrium. We must also recall the difference in the menstrual blood itself as mentioned above, there being an absence of uterine epithelium and stroma clumps in anovular bleeding, while these are present in ovular menstruation. With the decided differences mentioned, one is inclined to feel that an anovular bleeding should not be classified as a menstruation even though the bleeding is cyclic. The reason for mentioning this type of bleeding is that this may be the explanation of many cases of sterility with a history of a normal menstruation, but in reality are having a cyclic anovular type of bleeding. This diagnosis can be confirmed by histologic examination, by the absence of a pregravid endometrium near the close of the menstrual cycle. In order to obtain a specimen for this examination, a complete curettage is not necessary, but simply a slight dilatation sufficient to get a curet in and then obtain a small scraping. Novak¹⁰ is said to have found a number of cases of sterility due to this factor. If this condition is present the treatment indicated is one that will induce ovulation. We know that in the rabbit the injection of pregnancy urine will produce this effect (Friedman test) but the effect of the anterior pituitary-like hormone in man is questionable. It is very likely that a true anterior pituitary sex hormone would be of value here.

One of the dysfunctions deserving of considerable consideration is dysmenorrhea, because of the agony it produces and the frequency of such cases. These cases occur often in patients who are reported as normal after pelvic examination. The onset of the pain is as a rule about one or two days prior to menstruation, is colicky and spasmodic in type, and disappears after the bleeding has been well established. The previous theory of mechanical obstruction preventing the free flow through the uterine canal has been pretty well exploded. Novak¹⁰ has passed a probe through the uterine canal at the height of pain and noted no obstruction. An acute ante flexion may explain an occasional case of dysmenorrhea but when one considers the number of cases of acute ante flexion with no dysmenorrhea this theory seems well refuted. Another theory is one of hypoplasia of the pelvic organs. This too does not hold because of patients with dysmenorrhea having a normal or an enlarged uterus, while others with a marked hypoplasia have no dysmenorrhea. Constitutional factors may be considered because of the patient's lowered threshold for pain. The theory that seems to explain a majority of these cases is one of endocrine imbalance.

One of the factors produced by estrin and

not previously mentioned is that of increased uterine motility, while progesterin, the luteinizing hormone, produces the opposite effect. Reynolds¹¹ demonstrated the rhythmic uterine contractions in an unanesthetized rabbit by inserting a small balloon into the uterus and recording the contractions. He found that there was considerable activity during the estrus phase and very feeble or no motility during the anestrus phase. If the animal is castrated the uterus becomes quiescent. If theelin or amniotin is injected the uterine motility is restored. If this is followed by progesterin injections the uterus again becomes quiescent. From these observations we feel safe in concluding that one of the actions of estrin is to stimulate uterine activity, and of progesterin to inhibit it. Knaus has transferred his experiments to man and his findings were identical with the above. He found by injecting pituitrin to produce uterine contractions that the uterus responded to the stimulation during the first half of the cycle and was refractory to stimulation during the second half. Let us now utilize these findings to explain the cause of dysmenorrhea.

We believe that the pain of dysmenorrhea is due to spasmodic contractions of the uterine muscle. We know that this condition occurs one or two days prior to the onset of the flow. This coincides with the time the corpus luteum begins to degenerate, deduced from the fact that menstruation occurs 24 to 48 hours following excision of the corpus luteum. Thus, the time of pain is when the progestational influence is withdrawn thereby permitting the return of the follicular hormone influence to activate the uterus again. This process occurs in all normal women, yet to some these contractions are registered as pain. This may be due to a lowered threshold to pain stimuli, or to an endocrine imbalance between the two hormones. If the follicular hormone greatly exceeds the amount of progesterin it may result in marked uterine activity. If the corpus luteum hormone is removed too abruptly there may result a too sudden stimulation to the uterus. The treatment suggested in these cases is to give an additional amount of progesterin and thus allow a slower estrus influence to take place. Witherspoon¹² has used follutein, 1 cc., three or four days prior to the expected flow and one or two days during the flow. No further treatment was given until prior to the next flow. If this treatment was continued for three cycles, he claims to have obtained relief for from one to ten months. Bauer's¹³ report on a similar preparation was discouraging. He has, however, given thyroid in doses of $\frac{1}{2}$ to $1\frac{1}{2}$ grains a day in those with a lowered basal

metabolism with satisfactory results. He has found that patients with a normal or elevated basal metabolism did not give as favorable a result with thyroid. The action of the thyroid is probably exerted through the anterior pituitary gland, this gland conveying its stimulation to the ovary.

Bauer also observed that when he gave the whole posterior pituitary gland after the third stage of labor the action was not as prolonged or as vigorous as when pitocin alone is given. He concluded, therefore, that pitressin, the remaining fraction of this gland, must possess an inhibiting action. He therefore administered pitressin in 1 to 2 cc. doses at the beginning of and during the pain, observing the blood pressure in the meanwhile. He reports complete relief in five of six cases.

Of the various methods employed in the treatment of dysmenorrhea I feel that progestin, when available, will be the most valuable. It will eliminate the use of endocrine products that give very little progestational influence. The use of thyroid in cases with a low basal metabolism should be remembered. I have found tablets of anterior pituitary substance given orally beneficial, especially in cases with a definite pituitary hypofunction history, as scantiness of menses, prolonged intervals, etc. This is not in accord with the opinion of many who maintain that this gland given orally is of no value.

The next type of dysfunction to be discussed are those cases of absent or deficient menstrual flow, namely, amenorrhea, hypomenorrhea and oligomenorrhea. A great number of cases of this group are due to constitutional factors, as acute and chronic infections, anemias, tuberculosis, pathologic pelvic conditions, psychic and emotional disturbances, and even changes in climate or environment. We must, however, limit this discussion to functional conditions only. As a rule, one thinks of these cases as due to an underfunction of the anterior pituitary gland thereby affecting the ovaries. There are cases, however, in which the ovaries are unable to respond to the stimulation from above, either because of a faulty development or due to a destruction of the ovaries, as by roentgen ray. Thus, the functional types of a deficient or absent menstrual flow may be due to either a hypofunction of the pituitary gland or to the inability of the ovaries to function.

With a hypofunction of the anterior pituitary gland there is associated along with this type of menstrual disturbance other characteristic signs of hypopituitarism, as small facial features, small hands and feet, underdeveloped breast and features of infantilism. On the other hand, the individual may be tremendously

obese with characteristic pads of fat in the axillary region, about the abdomen, buttocks and hips, with huge breasts, and still retaining the characteristic small hands and feet as well as the small facial features. Sterility is a frequent accompaniment in hypopituitarism, especially the amenorrheic type, while in hypomenorrhea and oligomenorrhea, a one-child sterility may exist. The frequency and the amount of the menstrual flow is dependent on the amount of stimulation excreted. The amount of stimulation may be entirely insufficient to produce a menstruation, or may be sufficient to produce some endometrial changes resulting in a scanty or an occasional bleeding, and even an occasional ovulation and corpus luteum formation. It is quite likely that these scanty and infrequent flows are not true menstruations, because of a lack of sufficient stimulation to produce ovulation and a pregravid uterine reaction. This would account for the low fertility associated with this condition. It is to be expected that in these cases of pituitary hypofunction the amount of estrin and pituitary sex hormone would be very small both in the blood and in the urine. Patients that show a demonstrable estrin level at regular intervals may respond to treatment. A further aid in diagnosis and for a determination of the extent of function is a histologic study of a premenstrual endometrial scraping. In this way one can determine if the cycle is completed and whether pregnancy is possible.

In the ovarian type, in which the ovaries fail to respond to pituitary stimulation, the amount of pituitary sex hormone is adequate, while the follicular hormone is lacking. Whether the menstruation will be absent or deficient depends on the amount of ovarian action. In these cases there is a compensatory increase in the pituitary hormone analogous to the increase that occurs following castration. Thus, a study of the blood and urine shows an increased amount of sex hormone while the estrin level is low. These cases become more apparent after the age of puberty is reached, when signs of hypogonadism appear, such as the overgrowth of long bones, a narrowing of the pelvis, and other hypogonadal features. There may be an arrest of the genital development, and the patient may show signs of increasing weight.

Frank and Goldberger⁶ have reported cases in which the renal threshold for estrin is low with a result that the estrin is excreted so rapidly that the blood estrin is kept too low to produce normal uterine changes while the estrin level in the urine is high. The extent of the uterine reactions depends on the blood estrin level.

There are cases of hypothyroidism associated

with this condition which offer the best outlook in treatment. This condition may result from hyperthyroidism also. An excessive stimulation from the pituitary gland, as in acromegaly, may cause an amenorrhea due to the hyperluteinization of the follicles.

The treatment of amenorrhea on the whole is very disappointing if one seeks to establish a rhythmical menstruation. Kaufman and Werner have demonstrated that bleeding can be produced by giving large doses of an estrus product. They have also shown that even an atrophic uterus can be developed by giving large doses of theelin or other estrogenic substances. This does not establish the menstrual cycle and the bleeding comes from an interval endometrial phase. This type of bleeding is of no value. If one considers that amenorrhea as a symptom produces little or no ill effects, except that the patient remains sterile, then producing a purposeless bleeding will avail the patient nothing. Kaufman in treating amenorrhea of long standing has used as much as 4,000,000 international units in three months, and as much as 500,000 to 1,000,000 international units a week to produce a developed uterus and endometrial changes. He has followed this stimulation with correspondingly huge doses of corpus luteum to produce a typical menstrual flow. When the injections cease, so do these changes. Furthermore, with the knowledge that estrin acts as a depressant to the ovaries as shown by Hisaw and others, there is little room for encouragement for this type of therapy. His huge dosages are made possible by using an estrus product that contains 250,000 international units per cc. while theelin in oil contains only 1000 units. When one compares his dosages to produce a normal function, it is little wonder our failures are high. It seems that the only salvation for the treatment of such cases will be by stimulating the pituitary gland. The use of a pituitary-like hormone is of little or no value. Witherspoon¹⁴ reported on 12 cases of amenorrhea treated with amniotin, 50-100 R.U. daily for 10 days, then given an anterior pituitary-like hormone, 250 R.U. daily for 6 doses. In this way he attempted to stimulate the endometrium into a proliferative, then a secretory phase thereby simulating the normal as closely as possible. Five of these cases had the menses return, but it is not known whether the bleeding was ovular or anovular in type.

Cases of amenorrhea in which hypothyroidism is a factor were reported by Mussey and Haines¹⁵ with improvement of 59 per cent of the patients elevating their basals ranging from a minus 27 per cent to minus 11 per cent, to a

minus 5 per cent to a minus 8 per cent. They noted that if the basals rose higher the patients did not feel well. They also noted that the earlier the cases were treated the better the prognosis; and that the unimproved cases were amenorrheic for two and one half years or longer, while the improved cases were amenorrheic for one year or less. The treatment of hypomenorrhea and oligomenorrhea is along similar lines being a matter of degree of the extent of deficiency. The prognosis in these cases is more favorable. Mussey and Haines in their series of hypothyroid patients showed an improvement of only 2 of 5 patients, or 40 per cent. A case of hypomenorrhea with sterility is reported⁵ with a low blood estrin level three days prior to the expected flow, and the scrapings were negative for premenstrual changes at this time. This indicated definitely a defective luteinization. The patient was given two courses of anterior pituitary sex hormone injections and the normal menses returned. Shortly thereafter the patient became pregnant. It is obvious that to treat the above cases properly, a thorough investigation of the estrin and anterior pituitary sex hormone levels is important, as well as a histologic study of the endometrial scrapings to enable one to determine whether the proper dosages are being used and whether results are being obtained.

The next subject to be discussed is the menopause. This condition is called to our attention when discomforts are produced, as flushes, vertigo, headache, general aches, and other discomforts. The amount of disturbance may be very very little or very trying. The cause of this discomfort is obviously due to the withdrawal of ovarian secretion. Zondek divided the climacteric into three periods. In the first period there is an excess of estrin, as determined by the estrin level in the urine. This is thought to be due to the ovaries being incapable of producing luteinization. This allows the estrin to be elaborated for prolonged periods thereby producing an excess of this hormone. No discomforts are noted at this period, but there may be a prolonged and more profuse menstrual flow. If excessive, scrapings will show an endometrial hyperplasia as a result of this increased estrin stimulation and a lack of luteal hormone formation.

In the second period the estrin begins to fail also, the level being low both in the blood and urine. As a result, the menses becomes scantier, the intervals are prolonged and finally cease. This drop in estrin also produces the various discomforts as headaches, vertigo, flushes, general aches, etc. To obtain the best results treatment should be instituted within the first

year following the cessation of menstruation; the earlier the treatment is instituted the better the result.

In the third period the anterior pituitary sex hormone is in excess, which signifies complete failure of the ovaries to respond. The hot flushes subside and the genitalia show more atrophic changes. The basal is lowered and a steady gain in weight is noticed.

The object of the treatment in menopause is purely substitutional. In the first stage no treatment is necessary unless a menorrhagia is present. The treatment of menorrhagia will be discussed separately.

In the second period when the estrin level is low, estrogenic products are suggested in substitution therapy. It has been found that if these cases are treated early the course of this period can be shortened and the amount of discomfort made minimal. Preparations available are theelin, amniotin, agomensin, etc., and are supplied in ampoules, suppositories and for oral use. Orally, from four to five times the unit doses necessary hypodermically are necessary to produce a result, using from 200 to 400 R. U. daily. The dosage is reduced as the symptoms are improved. Novak¹⁶ feels that ampoule medication is best and uses 50 units every day or every other day, from 2 or 3 to 6 or 8 injections as found necessary. This course is repeated from time to time and the results are found favorable.

The last group to be discussed is functional uterine bleeding, which includes menorrhagia and metrorrhagia. These bleedings are found to be the result of a deficiency or inactivity of the corpus luteum hormone. In this condition the maturing follicles do not rupture but persist and continue to grow. During this time estrin is being poured out and the endometrium is being subjected to a prolonged estrus influence. The proliferative phase of the endometrium passes beyond the normal and becomes overproliferative. This hyperplasia is known as an endometrial hyperplasia. When a certain level of estrin is reached it produces an inhibiting effect on the anterior pituitary gland, less stimulation is then sent to the ovary and a drop in the estrin level results. Bleeding sets in from this overproliferative endometrium and is usually profuse. This functional hemorrhage is found in the two extremes of a woman's menstrual life, at puberty and at or near the menopause. There may be an occasional hemorrhage between these extremes. It has been estimated that approximately 84 per cent of the hemorrhages occur at or near the menopause, and that practically all endometria show some degree of hyperplasia.

Burch¹⁷ and his co-workers made a study of ovarian changes in these conditions and found an absence of corpora lutea and the presence of follicular cysts a prominent feature. Cysts may remain for a few weeks or indefinitely, attain a huge size, continue to elaborate estrin, and delay the time of bleeding; in other words, produce an amenorrhea at times. The estrin level is high both in the blood and in the urine, there is the absence of a secretory phase and sterility is present.

The bleeding associated with this condition is due to the incomplete sloughing as compared to normal menstruation. In the normal menstruation the desquamation takes place down to the basal layer and effects the entire endometrial surface. In this condition there are patchy areas of necrosis which may extend for two or three months before desquamation takes place and then may never reach the basal layer. The difference in types of sloughing probably explains the marked bleeding. If a curettement is done and the basal layer is exposed bleeding stops. Novak and Hurd are of the opinion that this bleeding results because of an imbalance between the prolan A and prolan B stimulation. Whichever opinion is correct we are certain that a deficiency of the corpus luteum hormone exists and that the bleeding takes place from an endometrium not acted upon by this hormone.

The ideal method of treatment in these cases is to supply a true anterior pituitary hormone that would stimulate the ovaries to complete their cycle. In the absence of stimulative therapy, substitution therapy is in order. The product that will soon be available for use in the United States and should prove of inestimable value in these cases is progesterin. This product should stimulate a secretory phase to develop and thus complete the endometrial cycle. In the absence of this preparation, follutein and antuitrin-S have been used with some success. Witherspoon¹⁴ reports having stopped the bleeding in 8 out of 12 patients by giving daily injections of follutein, 1 cc. Elden¹⁸ has given antuitrin-S, 1 cc. daily for three days, just before the midpoint of the intermenstrual period which prevented menorrhagia and metrorrhagia. He has also given patients enteric coated anterior pituitary gland, 15 grains daily for three to five days, at the same time as above, with encouraging results. Smith and Rock¹⁹ have given much greater doses than above mentioned. Their usual treatment consists of 4 to 6 injections of 5 to 10 cc. of the above products over a period of 4 to 10 days. They found that better results were obtained if the injections were given during the flow in

controlling rather than preventing a hemorrhage.

The cases of uterine bleeding at puberty or a few years thereafter should lead one to suspect a hypothyroidism. If present thyroid therapy will frequently give good results.

In our discussion thus far we have made no reference to methods other than glandular therapy in the treatment of these dysfunctions. The inability of obtaining a hormone that would stimulate the anterior pituitary gland to greater activity and thus produce its effect on the ovaries has produced a real stumbling block in therapy. If the ovaries could be stimulated in this manner many of the dysfunctions could be eliminated. In the absence of this hormone, low dosage of roentgen rays have been used over the pituitary gland and over one ovary in order to produce an increase in their functions. Cases of amenorrhea²⁰ have been benefited in this manner; even a pregnancy has been reported to follow such a course of treatment. We are awaiting with interest the corpus luteum hormone, progesterin, which gives promise of being of extreme value in menorrhagia, metrorrhagia and other conditions where the corpus luteum hormone is known to be deficient. The use of radiotherapy, curettage and hysterectomy in cases of endometrial hyperplasia with excessive bleeding will be eliminated.

The importance of a thorough examination, especially the aid of the laboratory in the more obstinate cases should be realized. When we realize that hyperfollicularism can produce both an amenorrhea and a menorrhagia the necessity of being thorough is obvious.

Endocrine therapy in gynecological conditions is comparatively new. The tremendous interest created in this new field cannot help but bring even greater progress than has thus far been realized. One of the new preparations, progesterin, will soon be available for general use. We cannot help but feel that others will follow in due time. And as we advance in this new field of therapy we shall learn to look

to this type of therapy for our needs in cases of menstrual dysfunctions.

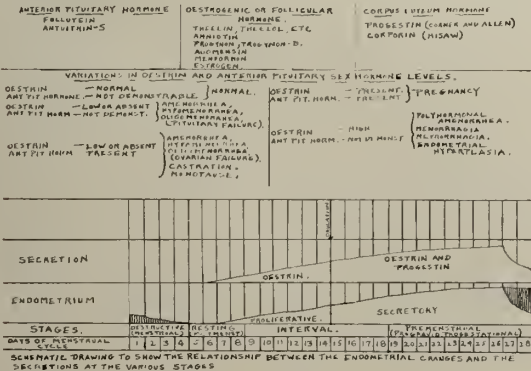
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CLINICAL EXPERIENCE WITH PROTAMINE INSULINATE

Howard F. Root, Priscilla White, Alexander Marble and Elmer H. Stotz, Boston (*Journal A. M. A.*, Jan. 18, 1936), state that preliminary observations in fifteen cases have in general confirmed the observations of Hagedorn and his associates regarding the protamine insulinate that has been developed in their laboratories. Presumably by slow breakdown of the compound in the subcutaneous tissues, a blood sugar lowering action is secured which is even and more prolonged than that which follows regular insulin. Because of this, wide fluctuations in blood sugar level are less apt to occur and hypoglycemic reactions can be largely avoided. The new preparation is still in the experimental stage. Further work both in insulin laboratories and in diabetic clinics will be necessary to determine when, how, and in which patients protamine insulinate or some related compound can be best used. With the prospect bright of maintaining the level of the blood sugar within normal limits throughout the twenty-four hours, it would appear as if a new revolution in the treatment of diabetes must follow and the possibility created for the diabetic patients to resemble more closely a normal individual.



TREATMENT OF CATARACT IN DIABETIC PATIENTS

W. C. CHEEK, M.D.

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Diabetes, one of our more common general systemic diseases, still holds its share of the limelight. It is of interest to the ophthalmologist since the eyes often present symptoms of infinite value to the internist in the diagnosis, treatment and prognosis of the disease. Occasionally the disease is suspected for the first time following an examination of the fundus.

Changes in refraction are estimated to occur in some 15 per cent of diabetic cases. This change may be sudden or gradual and may vary over a considerable range. The patient may become myopic, or there may be a reduction in the degree of hyperopia. This gives rise to the so-called "second-sight." The opposite comes on following insulin treatment and the patient becomes hyperopic or far sighted. These changes have all been explained by the laws of osmosis; that when the sugar content of the media around the lens reaches a certain concentration the lens takes up fluid and increases in volume, producing myopia; in like manner under proper insulin and diabetic treatment the lens gives up water resulting in hyperopia.

Diabetic cataract is another change in the refractive media. It is rapid in development, occurs bilaterally and most often in young people. One form gives the lens the appearance of a dirty, grayish mass. The other form occurs in elderly people and the appearance is the same as any other senile cataract.

Where the patient has lens changes that are interfering with their work operation is indicated. We still have many ophthalmologists who discourage these patients and go so far as to tell them never to be operated on. During this last year I saw two patients who had been told this so often that they had given up hope of any benefit to vision. One patient sixty-five years of age with good light perception and projection refused operation when I told her, barring accidents, useful vision could be restored. She had been told the opposite so often, that what I told her were "words that had no meaning." The other was operated on and came out with 20/30 vision O. V.

Treatment of these cases demands close intelligent cooperation between the internist, ophthalmologist and patient. If one falls down on the job results are not good. Where the patient is seen early and the lens changes are still confined to the anterior or posterior capsules

prompt treatment of the diabetes will often arrest the lens changes and useful vision be retained. This is especially true in young people. Unfavorable progress of the disease very often can be traced to the inefficient treatment given. It is not sufficient merely to get the urine sugar free; the blood sugar must be brought within normal range and checked from time to time to keep it there. Diet and insulin are our weapons with which to accomplish this result. At the same time it must be impressed on the patient that he is not going to recover from diabetes, but his well-being and even life itself depends on carrying out his régime.

If regulating treatment fails to arrest cataract development, or if the case is seen after development only one treatment is available and that is cataract extractions.

In children I follow a different technic from adults on account of the lens being soft. The patient's blood sugar is brought to normal with insulin and diet and the patient stabilized. Particular care is given to the clotting time of the blood. So far my best results have been when this was brought to around two minutes. Different forms of calcium have given me very little benefit in solving this problem. Parathormone extract has given best results. This is given hypodermically two times daily and five to twenty minutes is used routinely until clotting time is brought to two minutes. As a rule forty-eight hours will suffice. Extra care is also taken to see that all foci of infection are cleared up around teeth and tear sacs. If the patient has badly infected tonsils and adenoids I do not hesitate to remove these also before operating on the eyes. At operations on children I make a somewhat larger corneal incision under a flap, break up the lens, express all possible and use normal saline to wash out the remaining particles. A small peripheral iridectomy may or may not be done; personally I rarely do one as the iris does not tend to prolapse.

In adults the preliminary care is the same. At operation I do a large iridectomy, split the capsule and remove the lens. All anterior chambers are irrigated to remove iris pigment and lens debris. This pigment is abundant in these cases and I have found that iritis is much less liable to occur if lens particles and pigment are removed.

Complications likely to occur following operation are:

First: Hemorrhage from iris wound. I have not been bothered with this since using parathormone routinely. This is for two days following operation and at any time during convalescence if any sign of blood appears in anterior chamber.

Second: Plastic iritis. If lens particles, pigment and blood are allowed to remain iritis is almost sure to follow. This runs a low grade chronic course and the end result is a prolapsed occluded pupil. To remedy this and get useful vision is rarely easy. Zeigler's iridectomy has given me best results. In some cases an iridectomy can be done.

Third: Infection. This is no more liable to occur than in nondiabetics.

During convalescence insulin must be carefully regulated. While the patient is on liquid diet for twenty-four to forty-eight hours, if the full dose is given a hyperinsulin reaction will occur. This calls for a reduction in dosage. In very nervous patients the opposite may occur and the dosage has to be increased, for we know that the blood sugar increases during nervous shocks.

600 Medical Art Building.

THORACOPAGUS

REPORT OF A CASE IN OTHERWISE NORMAL
TWINs

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BLODGETT, MO.

The mother, aged 28, a white multipara with five healthy children, height 5 feet, 8 inches, weight 140 pounds, a native of Illinois, a tenant farmer's wife, had the ordinary diseases of childhood, no twins or other interesting history connected with either parent. Family of average intelligence, father and mother normal build and reasonably strong.

Labor was of ten hours' duration at or nearly full term. No prenatal care. Sound of only one fetal heart was heard. Progress was slow. The musculature of the abdomen and uterus was tense. Diagnosis made only when a double breech presented with four feet and four legs in evidence and then only when traction on one baby and repulsion on the other revealed that they moved as a unit. Patient was in a country home with no telephone connection. Long distance and bad roads made the hospital or other medical help unavailable. Patient complained of unusual pain, was nervous and appeared worried. Repeated hot wet packs to the perineum with a hypodermic of $\frac{1}{4}$ grain of morphine and 2 cc. of 25 per cent solution of magnesium sulphate were given. Inhalations of chloroform during hard pains with mental suggestion of rest in the intervals were likewise used.

With the operator on the right side of the

mother firmly grasping the feet of the upper or top baby and elevating the double breech nearly at right angle to the body of the mother traction was done during each pain as in delivering a simple breech.

The mouth of the upper baby could not be reached. The right cheek of the upper baby was in direct opposition to the left cheek of the lower one as the two heads were slowly delivered at the same time.

These so-called Siamese twins were well developed, stillborn females with no mutilations and apparently normal except for the common ventral union beginning at the upper end of the sternum and ending slightly above the level of the crest of the ilium.

The placental membranes and cord were single, the cord of ordinary length, about 2 cm. in diameter and attached to the two babies at a median point of juncture. The cord contained six vessels, two veins and four arteries. The two babies weighed eight pounds.

A roentgen ray picture indicates two separate complete frames except an osseous fusion at the upper end of the sternum.

The mother suffered no serious ill effects and was sitting up at the end of twelve days.

Thoracopagus is interesting chiefly because of its rare occurrence which applies to other forms of conjoined twins.

The real Siamese twins lived to be 63 years of age and created a great deal of interesting comment. Others of a similar kind regardless of location or nationality are designated as such. These twins are said to have married sisters and each in turn raised families of several children. The mothers with their respective offsprings established separate abodes thus necessitating frequent transit of the fathers from home to home that each might spend part of the time with his wife and children.

History records a man apparently normal whose mother was a member of conjoined twins. Such twins are in all cases of the same sex. As early as 945 A. D. the surgical removal of one deceased adult male twin to save the life of the other resulted in a fatality. The surgical separation of conjoined twins has in every attempt resulted in failure, possibly due to anatomical visceral connection at the point of union. The real Siamese twins are said to have been joined by a tongue of liver surrounded by peritoneum.

A search for a satisfactory explanation as to the cause of these irregular embryological developments leads to many theories all of which are unproved.

The scientist Stockard in experimenting with fish eggs has demonstrated the formation of monsters by either lowering the temperature or

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reducing the oxygen below the amount necessary for normal development.

A diagnosis of conjoined twins has never been made previous to delivery. The roentgen ray picture of the case described in this paper indicated that a diagnosis could be made under certain circumstances if roentgen rayed before delivery.

A review of the available literature on this subject leads one to infer that there is no set rule as to management in delivering a monstrosity. A double breech presentation with partial anesthesia when possible is advised when delivering a case of thoracopagus. Mutilation such as the amputation of a presenting part and later delivery of the remainder has been found necessary in a few cases. Cesarean section as a last resort may be done although the danger is great if many vaginal examinations have been made. Saving the life of the mother is the supreme issue.

Conjoined twins are classified, according to anatomical parts of union, into craniopagus, thoracopagus and pyogagus.

DISCUSSION

DR. A. L. WALTER, Sedalia: When I read in *THE JOURNAL* that Dr. Nienstedt was to read a paper on thoracopagus I wrote him and found that he had not been permitted to keep his specimen so it was arranged that I would exhibit mine in discussing his paper.

On April 13, I was called by a negro physician who told me he had a woman who had been in labor for twenty-six hours and thought he had a breech presentation; that after twenty-four hours of labor he was able to deliver one foot, a second one an hour later, but presently he found that he had four feet and did not know what to do next. He had transferred the patient to a hospital for colored people. When I arrived I found four feet presenting as far as the knees. We were unable to deliver or to replace either pair of feet, so after hurried preparations we did a cesarean section. The patient was 16 years old, colored and had been married a year. She was rather small, weighing probably 90 pounds.

At the cesarean operation we found these thoracopagus twins, both males, weight 11 pounds 8 ounces. They were dead at delivery but apparently had not been dead more than a few hours. There was one placenta with a single cord which as you see is attached at a point somewhat lower down than normally. The infants are joined from a point slightly below the naval up to a point just a short distance above the xiphoid. One is attached somewhat lower than the other and it was the foot of this one that presented first. Since the heads were down in the pelvis together it was impossible to deliver except by cesarean section as the babies weighed nearly 6 pounds apiece. While preparing for operation we had a nurse scrub the feet and legs thoroughly with compound cresol solution as the feet had been pulled on considerably and the patient had been transferred to the hospital wrapped in a very dirty blanket. As a result the patient recovered with no infection. She ran a temperature of 103 degrees on the third day but the fourth day it dropped to normal and remained so until she left the hospital on the fifteenth day with the wound healed by first intention.

I have some roentgen rays that show there were

two complete skeletons. It would appear from these pictures that the sternums are either not connected, or perhaps there is a cartilaginous union in the xiphoid region. We were unable to secure autopsies but hope to do so later and find the connection between the two. In the brief time that I have had to review the literature I find that 220 such cases have been reported in an article which appeared in the *American Journal of Clinical Pathology* in January, 1935. None of these except the original Siamese twins has lived more than a few hours; none has ever been diagnosed in advance of labor. In a few instances it has been predicted in advance of operation that twins were present but no one has determined that the twins were joined.

There have been several theories as to what produces thoracopagus. One theory is that there is a splitting of the primitive streak early in development. Another that there is a fusion of two primary ova. I have had some theories of my own that I am not able to prove. Any of you who have lived on a farm have seen a double yolked egg and have seen such eggs if placed in proper incubation produce a monster. We have seen chickens with two heads, with four legs or two bodies. It is my opinion that we have something similar to that although I have not been able to find any such theory advanced in the literature.

The only other conclusion I can draw from this case is that we have in compound cresol solution or lysol a very valuable antiseptic to be used in obstetrics. We have a number of proprietary antiseptics that are recommended highly, but in my opinion compound cresol is most valuable because it was with this that the feet and legs of these babies were scrubbed before the cesarean section. If there ever was a case that had opportunity for infection it would be a case of this kind where the legs had been handled and pulled on for two hours, moved to a hospital wrapped in a dirty blanket and then delivered through the uterus.

SURGICAL TREATMENT OF ANOMALIES OF UPPER URINARY TRACT IN CHILDREN

Fortunately, Meredith F. Campbell, New York (*Journal A. M. A.*, Jan. 18, 1936), declares, the majority of anomalies of the upper urinary tract are amenable to surgical treatment. Preoperative and postoperative surgical care in children demands the liberal administration of fluids, the free employment of blood transfusions and the prevention or combat of acidosis with dextrose. These considerations together with the conservation of body heat and a minimum of surgical trauma (sharp rather than blunt dissection, rigid hemostasis) will result in a surprisingly low mortality in radical surgery of the upper urinary tract even in extremely young children. Because children's kidneys, injured by obstruction, commonly show a remarkable restoration of function when afforded free drainage, conservative renal operations may be employed disproportionately more often in the young than in adults. Delayed diagnosis and a radical operation are usually reciprocal. Urologists are repeatedly impelled to perform nephrectomy for advanced hydronephrosis in children in whom recognition of the lesion two years earlier would doubtless have meant preservation of the organ. This is particularly and commonly true in ureteral obstruction by aberrant vessels or congenital stricture. In almost every case, open drop ether is the anesthesia of choice. Anomalies and their surgical treatment that the author considers are (1) kidney: reduplication, abnormal mobility, polycystic, solitary cystic and horse-shoe formation; (2) ureter: reduplication, abnormal insertion, ureterocele, ectopic opening, blind ending, stricture, kink, valves and vascular obstruction.

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FEBRUARY, 1936

EDITORIALS

DIET AND DEGENERATIVE DISEASES

There is well-grounded scientific proof for the belief that diet may be of vast importance in the treatment of the degenerative diseases of middle life. For instance it cannot be gainsaid that heart disease may be improved by diet. However, it is important that there be adequate understanding of the role played by diet in these conditions. There is no single dietary factor which can be introduced into or withheld from the diet to cause a beneficial effect upon the heart; diet is of importance only as it influences the metabolic load of the body. It is the totality of the diet rather than one specific dietary element which is of importance.

In an individual weighing 200 pounds who is 50 pounds overweight the heart is forced to do work for one third more body substance than normally should be required of it. A healthy person has a tremendous cardiac reserve so this 50 pounds excess would not cause any early evidence of stress. Yet over a period of years the heart in this instance would be forced to do far more work than if less tissue required nutriment. On the other hand, in the patient with heart disease cardiac reserve is already diminished. It is impossible to foretell the exact moment when the strain of effort will prove too much for the heart and the patient develop decompensation. By lessening the weight of the patient with heart disease the moment of eventual inability to support the increased load may be deferred. That very corpulent persons have occasionally lived for years with heart disease does not diminish the force of the argument. The common experience of life insurance companies, that obesity predisposes to heart trouble and other degenerative diseases of middle life, argues strongly for the truth of the observation.

In persons with high blood pressure, perhaps some reduction in pressure can be accomplished

by lessening the metabolic load. This conception explains the wide use of bed rest for such patients. When activity is resumed it is possible that a more nearly normal weight will be of some importance in maintaining the patient free from the symptoms of hypertension, but diet must not be depended upon in this condition.

The same general observations might be applied to kidney disease. However, here chemical studies of the blood reveal specific inability to utilize particular types of food substances. In the face of an elevation in the blood nonprotein nitrogen, protein is to be limited in the diet. In the presence of edema salt restriction is to be enforced. The myth that white meat may be eaten by a nephritic patient whereas red meat is harmful has long since been exploded for the medical profession yet it lingers in the mind of the layman. He must be disabused of some of his pet misconceptions so that he may be permitted the ultimate benefits of scientific medicine.

Food faddists maintain the constant interest of the public because of these ill defined popular instincts in the matter of diet. It is easy for the food quack to convince some laymen of the benefit to be derived from some poorly selected menu. Perhaps in holding out to patients the benefits of diet, the medical profession has unwittingly fostered such delusions because of general misunderstanding of the requisites of optimal food intake. Deficiency disease is rare in Missouri. Indeed, it is much more likely to follow the adoption of one of the special diet fads than to result from eating an unselected diet chosen by an untutored appetite. Perhaps by stressing to the patient with one of the degenerative diseases the importance of total calories rather than of specific food elements we can help eradicate the food faddist. Patients should be taught that any diet should supply them with a minimum of the thirty-seven little things that McCollum lists as essential to the optimal diet. They should be made to understand that in relatively few diseases does diet by itself play an important part; for example, stomach ulcer or diabetes.

Actually the profession can practice a new form of preventive medicine, viz., the prevention of the degenerative diseases of middle life. By urging patients to maintain a weight which approaches the normal it can be expected that the incidence of heart and kidney disease, of high blood pressure and of diabetes may be materially diminished. But let it be clearly understood that the role of diet is indirect, that it influences the incidence of these conditions only as it influences the metabolic load. If the important organs of the body are charged with less work because there is a smaller body mass

to be nourished, it is to be expected that these organs will not wear out so early and that the appearance of degenerative disease will be delayed.

ACCIDENTAL DEATH

The major function of the physician is the prolongation of useful life and the prevention of death. Primarily concerned with death from disease the physician will want to take cognizance of death from other causes. It is estimated that during the twenty year period ending in 1930 accidents caused one of every eleven deaths,* a greater number than was caused by cancer. The high incidence of injury not followed by death may be inferred. It is not surprising that the automobile accounted for one third of the total accidental deaths between 1925 and 1930, although such deaths are not an inherent hazard of modern methods of transportation since the rate of accidental death from all other methods of transportation declined by two thirds during this interval as compared with the rate for the preceding five years. On the other hand, it is disconcerting to learn that falling was the second largest cause of accidental death (18,000 in 1930). Almost as many persons died from falls as from appendicitis. In women, four fifths of all falls occurred in the home, chiefly on stairways. During preschool life most accidental deaths in boys followed falls in the home. In boys of school age two thirds of the fatal falls followed tree climbing. We might go on indefinitely mentioning causes of accidental death; for example, one of every eight was by drowning. But statistics become tiresome. More important are the methods of prevention which the medical profession may recommend after consideration of statistics.

In many cities and towns physicians are members of school boards charged with the maintenance of instruction to children. It would seem important that instruction in accident prevention be made an integral part of the school curriculum. Children should be impressed with the possible dangers involved in their activities and taught to avoid them, in the same manner that manufacturers teach their employees to avoid the hazard of industrial accident. That success may be anticipated for such effort is shown in an actual reduction in the automobile accident death rate for boys aged 5 to 9 in the five years ending in 1930 as compared with the preceding five years. In all other age groups studied there was a significant rise in the mortality rate during these years. There can be little doubt but that the safety movement sponsored

by safety councils and automobile clubs accomplished this saving of life. It is to be hoped that physicians occupying positions of community leadership will lend their efforts to the reduction of the increasing mortality from accidents.

The physician can render an even more direct service in this respect by offering adequate cautions when he instructs patients in the use of physical therapy in the home. The physician may tell the patient not to turn the electric switch while in the bath tub; to stay awake until he disconnects the electric heating pad. He may suggest appropriate limitations of activity for the physically handicapped patient. For example, he may advise the patient subject to dizzy spells not to climb a stepladder, caution the patient with poorly compensated heart disease to use stairs only with assistance, may even urge the use of untipable high chairs for infants and of baby beds made with sides so high that the child cannot climb over. The physician, ever anxious to prevent the rising incidence of accidental injury and death, can think of innumerable methods to lessen needless maiming and loss of life.

SMOKE AND ITS EFFECTS

The United States Public Health Service recently prepared a statement on the losses due to smoke for a hearing on bills for smoke control in the District of Columbia before the Congressional Subcommittee on Public Health, Hospitals and Charities.

The report divided the losses as economic losses due to imperfect combustion of fuels; extra expense of cleaning clothes; losses due to disfigurement of residences, office buildings and factories (repainting, etc.); losses due to soiled merchandise in stores; injuries to grass, shrubs and trees bordering the streets and in the parks; loss of daylight and ultraviolet light, and possible injurious effects on health.

Estimates have been made of the financial loss caused by the first four classifications in Pittsburgh, Chicago, Salt Lake City, Boston and Baltimore. The estimates vary from \$10 to \$30 per person per year. No estimate was made on increased lighting bills.

No definite data has been established on the effect of the coating of plant leaves in the absorption of carbon dioxide and the consequent converting into carbohydrates. Experiments in Leeds, England, however, showed a direct effect of smoke upon the growth of plants; for instance, the growth of lettuce in a smoky district was one fourth that in a clear district.

Neither the possible injurious effects on health nor the loss of ultraviolet light can be estimated in dollars and cents but the absorption

*The Mortality from External Causes, Monograph 3, Metropolitan Life Insurance Company, New York, 1935.

of ultraviolet light by smoke has been proved and tests have been made in several cities to determine the extent of this absorption. In Baltimore it was found that the amount of ultraviolet light was 50 per cent greater in the adjoining country than in the city; in Chicago the loss varied from 43 to 51 per cent on smoky days, and in Pittsburgh the ultraviolet light was 60 per cent less than in a small residential town twelve miles away.

DR. ARTHUR J. CRAMP

Dr. Arthur J. Cramp, founder and for twenty-nine years active head of the American Medical Association's Bureau of Investigation, resigned recently because of ill health. Dr. Cramp had been with the American Medical Association since 1906 when he became a member of the staff of the *Journal of the American Medical Association*. He soon developed the Propaganda and Reform Department, now known as the Bureau of Investigation.

Dr. Cramp was born in England and came to the United States when he was 19. He graduated from the Wisconsin College of Physicians and Surgeons, Milwaukee.

In addition to the many duties of his office he has written many books, journal articles both lay and professional, and has filled numerous speaking engagements. His "Nostrums and Quackery" is now being prepared for the third edition.

Dr. Cramp has done much for the medical profession and for the public. He has maintained that his primary interest was the good of the public. Probably every major medical quack who has been exposed in the last fifteen or twenty years owes his exposure to Dr. Cramp and this has been a great benefit to the public but certainly the medical profession has profited greatly also.

Dr. Cramp's retirement is a distinct loss to the American Medical Association, the medical profession and the public.

NEWS NOTES

The Kansas City Pathological Society held its annual meeting December 3 and Dr. Frank J. Hall, Kansas City, was elected president and Dr. R. W. Kerr, Kansas City, secretary-treasurer.

Dr. Howard C. Naffziger, San Francisco, delivered the annual Hodgen Lecture January 14 at the St. Louis Medical Society building under the auspices of the St. Louis Surgical Society and the Medical Fund Society. His sub-

ject was "Malignant Exophthalmos; Its Pathology, Treatment and Late Results."

The *Radiological Review & Chicago Medical Recorder*, published at Quincy, Illinois, since 1924, changed its name beginning January, 1936, to the *Radiologic Review & Mississippi Valley Medical Journal*, and became the official publication of the recently formed Mississippi Valley Medical Society.

The American Board of Ophthalmology has announced 1936 examinations in Kansas City on May 11 and in New York City in October at the time of the meeting of the American Academy of Ophthalmology. All applications and case reports must be filed at least sixty days before the date of examination. All correspondence should be directed to Dr. Thomas D. Allen, Assistant Secretary, 122 South Michigan Boulevard, Chicago.

Mr. Raymond Hertwig, Secretary of the Committee on Foods of the American Medical Association since the committee's organization in 1930, has become associated with the Borden Company, New York. Mr. Hertwig's change was made in consequence of the recent decision of the Board of Trustees of the American Medical Association to combine the work of its various councils under one directorship and to restrict the work of the Committee on Foods.

The Cancer Committee of the Missouri State Medical Association furnished speakers for two cancer control meetings during January. On January 7 the Holt County Medical Society and the Mound City Chapter of the Twentieth Century Club sponsored a meeting at Mound City. Speakers were Drs. H. J. Ravold, H. E. Peterson, Floyd H. Spencer and W. E. B. Hall, St. Joseph.

On February 3 a cancer control program will be sponsored by the Laclede County Medical Society at Lebanon. Drs. G. V. Stryker and E. L. Keyes, St. Louis, will speak on "Facts About Cancer" at a public meeting in the afternoon. At a scientific session in the evening Dr. Stryker will speak on "Early Cancer of the Skin and Predisposing Conditions" and Dr. Keyes will discuss "Cancer of the Lower Lip and the Mouth."

The seventh annual assembly of the Southeastern Surgical Congress will be held in New Orleans, March 9, 10 and 11, 1936, with headquarters at the Roosevelt Hotel. Dr. B. T. Beasley, 478 Peachtree Street, N. E., Atlanta, Georgia, is secretary-treasurer of the organization.

The Kansas City Southwest Clinical Society is again presenting its monthly hospital clinics at the allied hospitals of Greater Kansas City. The January clinic was presented at St. Luke's Hospital, January 14. The February clinic will be held February 11 at the Research Hospital. The clinic will be a symposium on "Pneumonia" with addresses by several members of the society. Dr. W. D. Sutliff, Chicago, will be a guest and will give an address on "A Résumé of Serum Treatment of Pneumonia." Dr. Sutliff will also appear on the evening program which will be a joint meeting of the Jackson and Wyandotte county medical societies.

Dr. William Hallock Park, New York City, for forty-one years director of the Bureau of Laboratories of the New York Department of Health, retired on his seventy-second birthday, December 3. He will take a six months' vacation and then become director emeritus continuing to work in an advisory capacity. Dr. Ralph Muckenfuss, formerly of St. Louis, acting associate director, will be in charge in Dr. Park's absence. Dr. Muckenfuss was assistant professor of medicine in Washington University School of Medicine, St. Louis, which position he resigned July 1, 1935, to accept the assistant directorship under Dr. Park. The new William H. Park Research Laboratories, named in honor of Dr. Park, will be completed and dedicated while Dr. Park is still nominally in the city's service.

At the business meeting of the Council on Medical Education and Hospitals of the American Medical Association held in Chicago December 8 and 9 it was voted to reconsider the resolution passed in September that the Council would no longer list two year medical schools. It was voted that each school be considered individually. The action taken at the September meeting was opposed by the Missouri State Medical Association and a resolution was adopted at the November 19 Council meeting asking the Council on Medical Education and Hospitals to rescind its action regarding the two year medical schools. The Council at its recent meeting considered one two year school and voted that sophomore students at present enrolled in that school may be accepted in approved schools without prejudice.

The following members responded to invitations of the Postgraduate Committee of the State Association to deliver addresses at recent meetings of the component county medical societies:

Dr. Daniel E. Kauffman, St. Louis, and Dr. Fred A. Jostes, St. Louis, were guests of the Marion-Ralls County Medical Society at Hannibal, November 8. Dr. Kauffman spoke on "Arthritis" and Dr. Jostes discussed "Fractures."

The Nodaway County Medical Society had as its guests at Maryville on November 6, Drs. D. A. Williams, C. C. Conover and E. R. DeWeese, Kansas City. Dr. Williams discussed "Pathology and Treatment of Diseases of the Colon"; Dr. Conover presented "The Etiology of Diseases of the Colon," and Dr. DeWeese presented roentgen rays and diagrammatic drawings illustrating the two addresses.

On December 5 Drs. Richard Weiss and Leon Bromberg, St. Louis, were the guests of the Six County Medical Group at Dexter and discussed respectively "The Diagnosis and Treatment of Some Common Skin Diseases" and "The Diagnosis and Treatment of Syphilis."

Dr. John F. Patton, St. Louis, was the guest of the Randolph-Monroe County Medical Society at Moberly on January 14 and spoke on "Infections of the Urinary Tract."

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Lederle Laboratories

Antidysenteric Serum (Polyvalent) 20 cc. vial package

Parke, Davis & Co.

Mapharsen

Ampoules Mapharsen 0.04 Gm.

Ampoules Mapharsen 0.06 Gm.

Ampoules Mapharsen 0.4 Gm.

Ampoules Mapharsen 0.6 Gm.

E. R. Squibb & Sons

Squibb Cod-Halibut Liver Oil

Winthrop Chemical Co., Inc.

Ampules Suprarenin Powder, 0.05 Gm.

The following product has been accepted for inclusion in the list of articles and brands accepted by the Council but not described in New and Nonofficial Remedies, 1935 (p. 445):

The National Drug Co.

Smallpox Vaccine (Vaccine Virus)

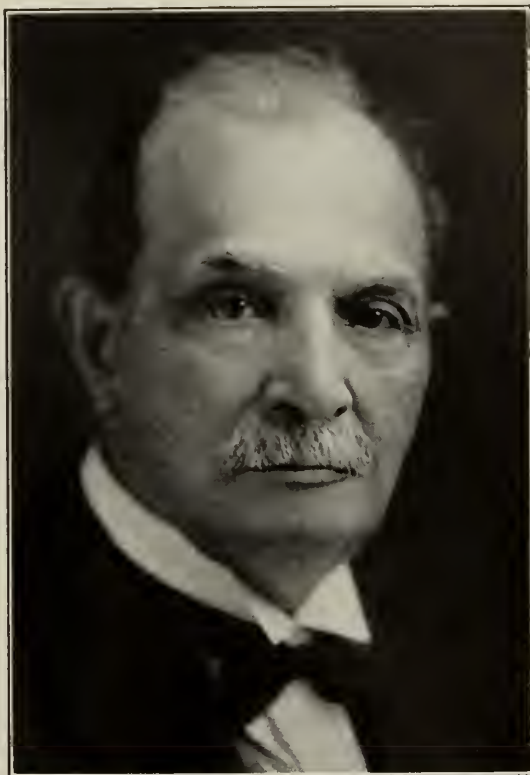
The Patriarchal Interns of the St. Louis City Hospital held a reunion on November 18, 1935, at the City Hospital. Dinner, music and addresses furnished the entertainment. Dr. Ralph L. Thompson, St. Louis Hospital Commissioner, was host and was assisted by Drs.

Avery P. Rowlette and Walter J. Grolton. Dr. R. Emmet Kane was toastmaster.

The "Patriarchal Interns" are those physicians who served as interns in the St. Louis City Hospital thirty years or more previous to November, 1935.

The program consisted of a paper on the St. Louis Hospital as read by Dr. Julius Kroll before the St. Louis Medical Society in 1858, presented by Dr. Amand Ravold; and addresses on "The Old City Hospital" by Dr. Joseph Grindon; "Destruction by Tornado of the City Hospital, May 21, 1896," by Dr. George M. Gorin; "Hospital in the Convent of the Good Shepherd," by Dr. R. Emmet Kane, and "The Building of the New City Hospital," by Dr. W. C. G. Kirchner.

Seventy former interns of the City Hospital attended the reunion, most of them located in St. Louis. Out of town guests were Dr. O. J. Culbertson, Dr. R. R. Campbell and Dr. H. M. Little, East St. Louis, Illinois; Dr. H. T. Coleman, Pattonville, Missouri; Dr. H. F. Dies, Ridgefarm, Illinois; Dr. Walter Pfeifferberger and Dr. Homer W. Davis, Alton, Illinois; Dr. F. G. Nifong, Columbia, Missouri; Dr. G. L. Armstrong, Taylorville, Illinois, and Dr. J. A. Matlock, Longmont, Colorado.



HENRY SCHWARZ, M.D.

OBITUARY

HENRY SCHWARZ, M.D.

Dr. Henry Schwarz, Professor Emeritus of Obstetrics and Gynecology in the Washington University Medical School, St. Louis, and one of the most widely known practitioners in his specialty, died October 23, 1935, in Barnes Hospital, St. Louis, of chronic leukemia. He was 79 years old.

Dr. Schwarz was born in Giessen, Germany, November 14, 1855. He attended the Gymnasium of his native town and in 1873 at the age of 17 years he came to the United States, locating in St. Louis where he obtained work in a drug store for a very small salary. He studied pharmacy and graduated from St. Louis College of Pharmacy in 1876. Not being satisfied to be a druggist he undertook to study medicine at the St. Louis Medical College (now the Washington University Medical School) from which he graduated in 1878. After his graduation in medicine he returned to Germany and continued his medical studies at the University of Giessen and received the degree of Doctor of Medicine from that University in 1880. From 1880 to 1883 he served as assistant in obstetrics and gynecology to Prof. Ferdinand Kehler at Giessen and Heidelberg. In 1883 Dr. Schwarz resigned at Heidelberg and returned to St. Louis where he took up the specialty of obstetrics and gynecology, making him a pioneer in this specialty in the United States. In 1886 he was appointed a lecturer in the St. Louis Medical College, and in 1899 when the St. Louis Medical College and the Missouri Medical College merged into the Washington University Medical School, Dr. Schwarz was placed at the head of the department of obstetrics

and gynecology. At the young age of 34 years he directed all of his time and energy toward making the department one of the best in the country. This ambition he achieved, for today the department of obstetrics and gynecology at Washington University is one of the foremost in existence.

Dr. Schwarz established a lying-in-department with hospital and out-clinic service which today cares for over 1000 cases a year. He had connected with his department a laboratory, a museum and a library. His department was complete in every detail for the training of the medical student and the doctor who wanted to be a specialist in obstetrics and gynecology. To achieve this aim he used his personal funds for the equipment of the department and paid his hospital assistants from his own pockets until the year 1910 when the University assumed the financial responsibilities.

Dr. Schwarz became Emeritus Professor of obstetrics and gynecology at Washington University in 1921. He continued in his private practice until a few days before his death.

Dr. Schwarz was very conservative in all of his teachings. He would not take up any new form of treatment until he had investigated it from all angles. He did considerable research work in his laboratory and many nights he spent there investigating some problem. In his working he always considered the patient first and would do nothing that would interfere with the well being of either mother or her unborn child. He contributed numerous articles to the medical literature and held many high offices in the medical profession. One of his most noteworthy contributions was "Twilight Sleep." Soon after the method of painless childbirth was announced in Germany, Dr. Schwarz adopted it in his work and today it is used, according to his technic, in many of the hospitals throughout the

land and particularly in St. Louis at the St. Louis Maternity Hospital which was his pride.

He was assisted in the building up of such a noteworthy department by his faithful and always cooperative wife who was loved by everybody that came in contact with her pleasing personality. She made daily visits to his department looking over the out-clinic satchels, etc., in order that everything would be in readiness when the student was sent out to some forgotten shack in a dark alley to attend a poor woman in childbirth.

Mrs. Schwarz, who was formerly Miss Johanna Laura Forster, daughter of Marquard Forster, an official of the Old Hyde Park Brewery, died in 1933. To them were born four sons: Dr. Otto, now professor of obstetrics and gynecology, Washington University Medical School and head of the department in Barnes and St. Louis Maternity hospitals, Walter, Marquard and Frederick Schwarz.

There are but few obstetricians and gynecologists practicing in St. Louis and adjoining territory who cannot say with pride they were taught by "Daddy Schwarz," as he was affectionately termed. He was very charitable and loved by all. He served in his specialty fifty-three years and though he has departed from our midst to that land from whose borne no traveler ever returns, his many teachings are still with us and will be handed down by us to those oncoming specialists. Q. U. N.

N. W. JARVIS, M.D.

Dr. N. W. Jarvis, Festus, a graduate of the St. Louis University School of Medicine, 1904, died of heart disease at his home, October 23, 1935, aged 55 years.

Dr. Jarvis was born and reared near Hematite, the son of pioneer residents of Jefferson County. Dr. Jarvis, as was his family before him, was always identified with movements for civic progress.

He was a conscientious physician and was highly respected by his patients and by his colleagues, not only in his own community but throughout the state. He was a loyal supporter of organized medicine. He was secretary-treasurer of the Jefferson County Medical Society for several years, was delegate to the Annual Sessions from 1924 to 1930. In 1931 he was elected president of the Society and served in that capacity for four years. He was appointed Councilor of the 21st District in 1930 and served in that capacity until his death.

Dr. Jarvis was apparently in good health. He became ill in his office late in the afternoon and was removed to his home where he died the same evening.

Dr. Jarvis is survived by his widow, Mrs. Daisy Seats Jarvis, his mother, one son, two brothers and two sisters.

FRANK K. BOOGHER, M.D.

Dr. Frank K. Boogher, St. Louis, died at Barnes Hospital in St. Louis, September 2, 1935. His death was due to coronary thrombosis. He was born April 10, 1866, at Seventh and Walnut streets which at that time was a fashionable residential district. His education was received in the St. Louis public schools and his medical degree from the University of Virginia in 1895.

He began his practice at 12th and Carr streets and had his office there for twenty-five years. In this thickly populated section of the city he had a large practice. His patients came from all walks of life, but the outstanding character of the practice was the number of Jewish families for whom he cared. Through the many years of his practice he had cared

for two and sometimes three generations of the same family. He has seen them arrive in his neighborhood as emigrants and had the greatest pride and pleasure in their later success. Not only was he a physician to these people but he was their counselor and friend.

He moved his office to his residence at Skinker and Pershing avenues where he had continued to practice for the last fifteen years. In the new location he was followed by his old patients and the night was not too cold nor the weather too stormy for him to go back to make a call on the poorest of his patients.

He attended the clinic of the old Barnes College. Later he became Deputy Coroner of St. Louis. During the World War he served as Captain in the Medical Corps.

Dr. Boogher was a member of the St. Louis Medical Society, the American Medical Association, Centenary Methodist Church, the University Club, the Sons of the Revolution and the Missouri Historical Society.

He was a member of one of the oldest St. Louis families. His great grandfather, Joseph V. Garnier, was one of the five incorporators of the town in 1809, and he heard his great grandmother tell of the day, March 9, 1804, when St. Louis was governed by three different nations in twenty-four hours, the Spanish, French and the United States. His grandfather, Honorable John Hogan, represented St. Louis in Congress in 1865, and his father, Simon L. Boogher, was a prominent wholesale hat merchant on Washington Avenue for many years. He is survived by his widow, Mrs. Nina Boogher, a daughter, Mrs. Richard D. Shewmaker, a sister, Mrs. Nathaniel L. Moffitt, a brother, Mr. Lawrence Boogher, all of St. Louis, and Judge John H. Boogher, a brother, now residing in Abilene, Texas.

Dr. Boogher was a hard working, conscientious practitioner, a delightful social companion and a real friend to hundreds of people who needed him.—W. R. in the *Weekly Bulletin* of the St. Louis Medical Society.

JOSEPH PERRY STANDLEY, M.D.

Dr. Joseph Perry Standley, St. Joseph, was born in Platteville, Taylor County, Iowa, October 30, 1868, and died at the Missouri Methodist Hospital, St. Joseph, November 8, 1935.

Dr. Standley attended the common schools in Taylor County and studied at Wesleyan University, Mount Pleasant, Iowa. He attended the Kentucky School of Medicine, Louisville, graduating from there in 1889.

He located at Platteville, Iowa, and practiced there for thirteen years. He moved to Bedford, Iowa, in 1902 where he practiced for fifteen years. In 1917 he took a postgraduate course at the Chicago Clinic, Chicago, for one year after which he located in St. Joseph as a specialist in eye, ear, nose and throat work. He continued his practice in St. Joseph until his death.

Dr. Standley was an ardent admirer of Masonic rituals; Masonry was his church.

He was married in 1888 to Miss Dora Wakefield; five children were born of the marriage. Four of the children are dead; one daughter, Mrs. Fern Straight, is living.

The Buchanan County Medical Society passed the following resolutions:

Resolved, That the Buchanan County Medical Society deeply regrets the death of one of its respected and esteemed members, and extends to his family and friends its deepest sympathies; be it further

Resolved, That a copy of these resolutions be sent to the family and one also be placed in the records of the Society.

CHARLES GEIGER, M.D.
H. S. CONRAD, M.D.
C. H. WERNER, M.D.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1936

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 19, 1935.

Montgomery County Medical Society, January 7, 1936.

Ste. Genevieve County Medical Society, January 8, 1936.

Camden County Medical Society, January 9, 1936.

Dent County Medical Society, January 13, 1936.

Perry County Medical Society, January 17, 1936.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society was called to order by the president, Dr. E. F. Cook, St. Joseph, December 7 with fifty members present.

The application of Dr. S. E. Meluney, St. Joseph, for provisional membership was read.

The applications of Drs. Morris, Peterson, Wadlow and Kulowski for active membership were read and turned over to the board of censors.

The obituary of Dr. J. P. Standley was read and an acknowledgment of flowers from Mrs. Standley.

A letter from Mrs. Cabray Wortley of the Woman's Auxiliary to Mayor Schuder asking that he appoint a recreation committee to have charge of a program to furnish playgrounds with proper supervision, was read. Dr. W. T. Elam, St. Joseph, moved, seconded by Dr. J. M. Bell, St. Joseph, that the playground resolution be adopted and the matter be turned over to the publicity committee for appropriate publicity. Dr. Elam moved, seconded by Dr. C. G. Geiger, that the Society approve a program for recreation with supervised playgrounds.

The following officers were elected for the year 1936: President, Dr. J. M. Allaman; vice president, Dr. J. T. Stamey; secretary, Dr. O. E. Whitsell; treasurer, Dr. J. M. Bell; censor (1936-37-38), Dr. Charles Greenberg; delegate (1936-37), Dr. H. W. Carle; alternate (1936-37), Dr. F. X. Hartigan; member of board of trustees (1936-41), Dr. J. J. Bansbach; member auxiliary committee on public policy, Dr. G. A. Lau.

EARL WHITSELL, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met December 9 at the Colonial Tavern, Cape Girardeau. The scientific program was dispensed with and a social evening spent during which officers for the ensuing year were elected.

Members present were Drs. D. I. L. Seabaugh, Rusby Seabaugh, B. W. Hays and A. M. Estes, Jackson; H. L. Cunningham, E. H. G. Wilson, J. J. Drace, J. H. Cochran, J. W. Berry, Paul B. Nussbaum, G. J. Tygett,

G. W. Walker, M. H. Shelby, N. F. Chostner, D. H. Hope, O. L. Seabaugh and Carl A. W. Zimmermann, Cape Girardeau.

A letter from Dr. E. J. Goodwin was read asking for dates of the January and February meetings that Mr.

E. H. Bartlesmeyer might plan to attend a meeting and confer relative to the Cape Girardeau County Medical Society entertaining the Missouri State Medical Association in Cape Girardeau in 1937. The secretary was instructed to provide the desired information.

A letter from Dr. Ellis Fischel, St. Louis, Chairman of the State Cancer Committee, was read in regard to a cancer program in the Councilor District in the spring. The letter was referred to the Society's cancer committee.

Officers were elected as follows: President, Dr. G. J. Tygett, Cape Girardeau; vice president, Dr. Rusby Seabaugh, Jackson; secretary, Dr. M. H. Shelby, Cape Girardeau; treasurer, Dr. B. W. Hays, Jackson; board of censors, Dr. J. H. Cochran, Cape Girardeau; delegate, Dr. B. W. Hays, Jackson; alternate, Dr. G. J. Tygett, Cape Girardeau.

The remainder of the evening was devoted to conversation, cards and a lunch, interrupted at times by medical dissensions of lesser weight.

CARL A. W. ZIMMERMAN, M.D., Secretary.

CHARITON COUNTY MEDICAL SOCIETY

The Chariton County Medical Society met in annual session at Salisbury on December 12. The president, Dr. H. E. Tatum, Brunswick, called the meeting to order.

Officers elected were: President, Dr. C. W. Bowen, Brunswick; vice president, Dr. W. B. Lucas, Mendon; secretary-treasurer, Dr. G. W. Hawkins, Salisbury; delegate, Dr. J. W. Hardy, Sumner; alternate, Dr. C. W. Bowen, Brunswick.

A testimonial dinner was given in honor of eight physicians who are over 70 years of age and still in active practice. Seven of the eight were present. Dr. Walter Hardy, Joplin, a son of Dr. J. W. Hardy, was present for the occasion and expressed greetings and congratulations to his father who is one of the eight. Another tribute of greetings and congratulations was read by the secretary to Dr. J. D. McAdam from his son, Dr. C. R. McAdam, an intern in the City Hospital, St. Louis.

The scientific program consisted of a talk by Dr. J. G. Montgomery, Kansas City, on "Treatment of the Acute Abdomen" and one by Dr. Sam E. Roberts, Kansas City, on "Deafness and Its New Treatment." Both talks were illustrated with lantern slides and were greatly enjoyed by all present.

Mr. E. H. Bartlesmeyer, Assistant Secretary, made several announcements that concerned Chariton County Medical Society relative to the work of the Association.

Guests from adjoining counties were: Drs. R. D. Streator, T. S. Fleming and O. K. Megee, Moberly; W. B. Kitchen, Glasgow, G. B. Putman, Marceline.

G. W. HAWKINS, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society was called to order at 8 p. m. December 10 with fourteen members present.

A motion by Dr. B. E. DeTar, Joplin, that the installation of officers be held at the annual meeting January 7 with a stag dinner at that time was seconded and carried.

Dr. W. L. Post, Joplin, read a paper on "Recent Developments in Squint Management." The paper was discussed by Dr. F. E. Rosenthal, Joplin.

Meeting of December 17

The Society was called to order at 8 p. m. at the Connor Hotel with twenty-five members present.

Dr. Ed James, Joplin, reported that the annual banquet and installation of officers will be held at the Connor Hotel, January 7. Plans were incomplete as to the dinner and entertainment.

Dr. L. B. Clinton, Carthage, presented a paper on "Proctology for the General Practitioner" urging that greater interest be taken in rectal diseases by physicians and that more routine rectal examinations be made. He outlined the common rectal diseases and treatment. Dr. A. M. Gregg, Joplin, opened the discussion by stating that too much rectal work was being done by osteopaths and that the work should be done by regular physicians and urged more diligence by them in caring for these conditions. Discussion was continued by Drs. R. L. Neff, B. A. Dumbauld, S. A. Grantham, Jr., and B. E. DeTar, Joplin.

J. W. HARDY, M.D., Secretary.

LAFAYETTE COUNTY MEDICAL SOCIETY

The Lafayette County Medical Society and its Auxiliary celebrated its fifty-sixth anniversary December 18 with a turkey dinner at the Arcade Hotel in Higginsville. The Johnson County members and their wives were guests. Fifty-eight persons enjoyed the banquet.

In absence of the president, Dr. B. T. Payne, Lexington, Dr. C. T. Ryland, Lexington, acted as toastmaster and called upon the various officers of the two societies for short talks.

After the dinner the Auxiliary withdrew for their annual exchange of gifts and the Society proceeded with its election of officers which resulted as follows: President, Dr. Francis W. Mann, Wellington; president-elect, Dr. W. E. Koppenbrink, Higginsville; secretary and treasurer, Dr. E. L. Johnston, Concordia. Dr. Johnson has been secretary-treasurer for ten years and holds the attendance record, not having missed a meeting for over six years.

The meeting was one of the most enjoyable the Society has ever held.

W. E. KOPPENBRINK, M.D., Reporter.

NODAWAY COUNTY MEDICAL SOCIETY

The Nodaway County Medical Society met at the St. Francis Hospital, Maryville, December 4. The president, Dr. C. D. Humbert, Barnard, presided.

Members present were: Drs. C. T. Bell, Hiram Day, Jack Rowlett and W. R. Jackson, Maryville; Dr. C. D. Humbert, Barnard. Guests were Dr. F. R. Anthony, Maryville, and Drs. H. L. Stinson and Jessie Miller, Maryville, dentists, and three sisters of the hospital.

Officers for 1936 were elected as follows: President, Dr. Jack Rowlett, Maryville; vice president, Dr. L. E. Egley, Maryville; secretary-treasurer, Dr. W. R. Jackson, Maryville; delegate, Dr. W. R. Jackson, Maryville; alternate, Dr. Jack Rowlett, Maryville.

W. R. JACKSON, M.D. Secretary.

PETTIS COUNTY MEDICAL SOCIETY

The Pettis County Medical Society met at the Bothwell Memorial Hospital, Sedalia, December 2. The meeting was called to order by the president, Dr. W. T. Bishop, Sedalia.

The reports of the standing committees and the treasurer were read.

The following officers were elected: President, Dr. H. A. Hite, Green Ridge; vice president, Dr. Gordon Stauffacher, Sedalia; secretary, Dr. Edward H. Schaefer, Sedalia; treasurer, Dr. A. E. Monroe, Sedalia; censor (1936-37-38), Dr. M. P. Shy, Sedalia; delegate, Dr. A. J. Campbell, Sedalia; alternate, Dr. W. A. Beckemeyer, Sedalia.

Meeting of December 16

The Pettis County Medical Society met at the Bothwell Memorial Hospital December 16.

An excellent dinner was served to the members and guests by the hospital.

Dr. W. T. Bishop, Sedalia, called the meeting to order and introduced Dr. F. B. Campbell, Kansas City, who gave an interesting paper on "The Diagnosis and Treatment of Anorectal Diseases." He illustrated his talk with motion pictures. A general discussion followed.

The following members and guests were present: Drs. W. T. Bishop, J. W. Boger, C. A. McNeil, J. B. Carlisle, J. E. Mitchell, A. E. Monroe, F. R. Morley, A. L. Walter, A. J. Campbell, E. H. Schaefer, W. M. Wheeler, C. D. Osborne, Cord Bohling, W. A. Beckemeyer, M. P. Shy, F. B. Long and Gordon Stauffacher, Sedalia; H. A. Hite, Green Ridge; E. E. Holtzen, Smithton; Harry Bay and T. S. Reser, Colecamp; G. W. Grove, Knobnoster, and F. B. Campbell, Kansas City.

GORDON STAUFFACHER, M.D., Secretary.

RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met December 10 in the Public Library Building, Moberly. The meeting was called to order by the president, Dr. C. C. Smith, Moberly.

A financial report for the year 1935 was made by the secretary-treasurer.

Dr. G. G. Bragg, Huntsville, was elected to membership.

The name of Dr. C. K. Dutton, Jr., Moberly, was presented for membership to be voted on at the next regular meeting.

Miss Margaret Ranck, the new Red Cross nurse, was introduced and her program of nursing discussed.

The following officers were elected for the coming year: President, Dr. M. C. McMurry, Paris; vice president, Dr. T. S. Fleming, Moberly; secretary-treasurer, Dr. M. E. Kaiser, Moberly; delegate, Dr. F. L. McCormick, Moberly; alternate, Dr. P. C. Davis, Moberly; censor (three years), Dr. John Maddox, Moberly, and censor (two years), Dr. J. P. Allen, Cairo.

The scientific program consisted of a paper on "Diabetic Coma" by Dr. T. S. Fleming, Moberly. A general discussion followed.

A light lunch was served at Miller's Cafe following the meeting.

The following guests and members were present: Drs. M. C. McMurry, Paris; J. P. Allen, Cairo; W. C. Alexander, Clifton Hill; C. C. Smith, R. D. Streeter, T. S. Fleming, F. L. McCormick, L. E. Huber, John Maddox, L. O. Nickell, P. C. Davis and M. E. Kaiser, Moberly.

M. E. KAISER, M.D., Secretary.

SALINE COUNTY MEDICAL SOCIETY

The Saline County Medical Society and the Woman's Auxiliary met at the Goodwin Hotel, Marshall, December 3, at a dinner in honor of Dr. and Mrs. John Lawrence who were married November 2, 1935. This was the fourth quarterly meeting of the Society.

The following physicians and their wives were present: Dr. and Mrs. C. L. Lawless, Dr. and Mrs. J. R. Lawrence, Dr. and Mrs. G. A. Aiken, Dr. and Mrs.

E. A. Belden, Dr. and Mrs. W. M. Bickford, Dr. and Mrs. H. R. Conway, Dr. and Mrs. G. S. Hardin, Dr. and Mrs. D. F. Manning, Dr. and Mrs. N. K. Pope, Dr. and Mrs. S. P. Simmons, Dr. and Mrs. A. T. Coffman, Mrs. R. P. C. Wilson, Mrs. F. H. Maples, and Dr. R. W. Kennedy, Marshall; Dr. and Mrs. A. E. Gore and Dr. and Mrs. R. C. Gentry, Sweet Springs; Dr. and Mrs. C. W. Caldwell, Dr. and Mrs. W. E. Lockwood and Dr. and Mrs. S. T. Mead, Slater; Dr. and Mrs. L. S. James, Blackburn; Dr. and Mrs. Coburn Ellis, Malta Bend, and Dr. and Mrs. B. H. Sullivan, Miami.

Before the dinner Dr. Aiken gave a toast to the bride and groom. After the dinner speeches were made by Mrs. Gore, Dr. Manning, Dr. Conway, Dr. Bickford and Dr. Lawrence.

Dr. Coburn Ellis, Malta Bend, was elected to membership.

The following officers were elected: President, Dr. J. R. Lawrence, Marshall; first vice president, Dr. S. T. Mead, Slater; secretary, Dr. R. C. Gentry, Sweet Springs; delegate, Dr. A. E. Gore, Sweet Springs; alternate, Dr. C. W. Caldwell, Slater; censors, Dr. W. M. Bickford, Marshall, Dr. L. S. James, Blackburn, and Dr. R. W. Kennedy, Marshall.

E. A. BELDEN, M.D., Secretary.

SOUTH CENTRAL COUNTIES MEDICAL SOCIETY

The South Central Counties Medical Society met at the El Patio Hotel in Cabool, December 5, at 12:30 for dinner with the following members present: Drs. J. C. B. Davis, Willow Springs; L. M. Edens and J. T. Robertson, Cabool; R. A. Ryan, H. G. Frame and A. C. Ames, Mountain Grove; A. H. Thornburgh, West Plains, and Leslie C. Randall, Licking.

It was voted to make the dues \$9 instead of \$8 as they have been for the last two years.

Officers were elected as follows: President, Dr. A. H. Thornburgh, West Plains; vice president, Dr. R. A. Ryan, Mountain Grove; secretary-treasurer, Dr. A. C. Ames, Mountain Grove; delegate (Howell-Oregon) Dr. A. H. Thornburgh, West Plains; alternate, Dr. F. A. Barnes, Thayer; delegate (Texas) Dr. Leslie C. Randall, Licking; alternate, Dr. J. T. Robertson, Cabool; delegate (Wright-Douglas) Dr. R. A. Ryan, Mountain Grove; alternate, Dr. R. M. Norman, Ava; censor (three years) Dr. J. A. Fuson, Mansfield; censors holding over, Dr. F. A. Barnes, Thayer, one year) and Dr. P. D. Gum, West Plains, (two years).

Dr. J. C. B. Davis, Willow Springs, reported on an obscure case of skin disease which he had treated and watched for several years and which was diagnosed by a Springfield physician as dermatitis gangrenosa infantum, but which does not seem to fit the textbook description of that disease very closely.

Dr. A. C. Ames, Mountain Grove, described a case of severe burn and showed photographs and specimens of burned skin tanned with tannic acid spray which sloughed off.

Dr. Leslie C. Randall, Licking, described a case of tularemia which he had recently treated.

Dr. A. H. Thornburgh, West Plains, spoke on the use of hydrochloric acid by intravenous injection as a remedy for all kinds of infections.

Dr. R. A. Ryan, Mountain Grove, told of a woman he was treating for severe vomiting of pregnancy who had undergone an operation in which she understood one ovary and a part of the other and both tubes had been removed.

An informal discussion of many other cases and subjects followed.

A. C. AMES, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

14th Annual Meeting, Kansas City, 1936

President, Mrs. Rogers N. Herbert, Nashville, Tennessee.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

12th Annual Meeting, Columbia, 1936

President, Mrs. M. Pinson Neal, Columbia.

President-Elect, Mrs. Walter Kirchner, St. Louis.

Advisor, Dr. J. F. Harrison, Mexico.

The Jackson County members are working hard to prepare for the National convention which meets there the second week of May. To the large gain in membership which was reported last June, there have been added thirty-nine other members. The following chairmen of committees have been appointed: Mrs. Herbert L. Mantz, general chairman of arrangements; Mrs. Ira H. Lockwood, registration; Mrs. James E. Stowers, tickets; Mrs. Evan Connell, reservations; Mrs. H. S. Tripp, assistant chairman of exhibits and chairman of the Missouri exhibits, and Mrs. T. G. Orr, information. Headquarters for the Auxiliary during the convention will be Hotel Baltimore.

The auxiliaries in large cities such as St. Louis, Kansas City, St. Joseph and Springfield have splendid programs, many brilliant social entertainments and do fine public relations work; but the small auxiliaries also are doing very fine work. As an example some of the achievements of the Cass County Auxiliary are cited. This small auxiliary was organized in 1924 and has at present eleven members which are scattered over the county. From this small group have come two state presidents and two national chairmen. Mrs. M. P. Overholser, Harrisonville, has compiled this summary of the year's work:

We had our annual social meeting with the Cass County Medical Society.

We carry out the full national program. In cooperation with the County Tuberculosis Society *Hygeia* is placed in every school in the county. We are sponsoring the health essay contest, giving \$10 in prizes to the school children winning first and second places. At the regular quarterly meetings we carry out the recommendations of the national program chairman. The national study envelopes concerning communicable diseases and common defects of children have been distributed to all rural school teachers, to the Parent Teacher associations, and to the women's clubs of the Farm Bureau. Annually we pay the transportation expense of the winner of the health contest in the Girls' 4 H clubs of the county to the state contest in Columbia.

On December 19 our fourth annual public relations meeting was held at the Christian Church, Harrisonville, with Dr. George H. Hoxie, Kansas City, giving an illustrated lecture on "Heart Disease; Its Various Forms, Causes, Symptoms, Dangers and Preventive Treatments." At the close of this meeting copies of *Hygeia* were distributed.

The Auxiliary assists in the sale of Christmas seals.

Mrs. T. W. Adair, Archie, is the president. Mrs. David S. Long, Harrisonville, is national chairman of public relations.

Any woman interested in forming an Auxiliary can obtain information and assistance by writing to the chairman of organization, Mrs. Chas. H. Werner, 1109 South 12th St., St. Joseph. In cases where it is not possible or advisable to form auxiliaries, women (who are eligible to membership) may become members-at-large. The annual membership fee is \$1. Such members receive the Quarterly *Bulletin* of the state auxiliary.

MISCELLANY

THE PHYSICIAN'S INCOME TAX—1936

The Federal Income Tax Law, the Revenue Act of 1935, has been amended in several respects but not as it affects physicians. However, that members may have correct data on the law, an explanation of the Federal law is reprinted from the *Journal* of the American Medical Association, issue of January 11, 1936, and information on the Missouri law is furnished by the auditor of the State of Missouri.

Federal Income Tax

The material from the *Journal* of the American Medical Association follows:

The Revenue Act of 1935 amended in numerous respects the prior income tax law, but none of the changes made relate to physicians as a class distinct from the main body of federal income taxpayers.

Every one who is required to make a federal income tax return must do so on or before March 15, unless an extension of time for filing his return has been granted. For cause shown, the collector of internal revenue for the district in which the taxpayer files his return may grant such an extension, on application filed with him by the taxpayer. This application must state fully the causes for the delay. Failure to make a return may subject the taxpayer to a penalty of 25 per cent of the amount of the tax due.

The normal rate of tax on residents of the United States and on all citizens of the United States regardless of their places of residence is 4 per cent on net income in excess of the exemptions and credits.

WHO MUST FILE RETURNS

1. If gross income was less than \$5,000 during 1935, a return must be filed (a) by every unmarried person, and by every married person not living with her husband or his wife, whose net income was \$1,000 or more, and (b) by every married person living with her husband or his wife, whose net income was \$2,500 or more. If the aggregate net income of husband and wife, living together, was \$2,500 or more, each may make a return or the two may unite in a joint return.

2. Returns must be filed by every person whose gross income in 1935 was \$5,000 or more, regardless of the amount of his net income and of his marital status. If the aggregate gross income of husband and wife, living together, was \$5,000 or more, they must file either a joint return or separate returns, regardless of the amounts of their joint or individual net incomes.

If the status of a taxpayer, so far as it affects the personal exemption or credit for dependents, changed during the year, the personal exemption and credit must be apportioned, under rules and regulations prescribed by the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury, in accordance with the number of months before and after such change. For the purpose of such apportionment a fractional part of a month should be disregarded unless it amounts to more than half a month, in which case it is to be considered as a month.

As a matter of courtesy only, blanks for returns are sent to taxpayers by the collectors of internal revenue, without request. Failure to receive a blank does not excuse any one from making a return; the taxpayer should obtain the necessary blank from the local collector of internal revenue.

The following discussion covers only matters relating specifically to physicians. Full information concerning questions of general interest may be obtained from the official return blank and from the collectors of internal revenue.

GROSS AND NET INCOMES: WHAT THEY ARE

Gross Income.—A physician's gross income is the total amount of money received by him during the year for professional services, regardless of the time when the services were rendered for which the money was paid, plus such money as he has received as profits from investments and speculation and as compensation and profits from other sources.

Net Income.—Certain professional expenses and the expenses of carrying on any enterprise in which the physician may be engaged for gain may be subtracted as "deductions" from the gross income, to determine the net income on which the tax is to be paid. An "exemption" is allowed, the amount depending on the taxpayer's marital status during the tax year as stated before. These matters are fully covered in the instructions on the tax return blanks.

Earned Income.—In computing the normal tax, but not the

surtax, there may be subtracted from net income from all sources an amount equal to 10 per cent of the earned net income, except that the amount so subtracted shall in no case exceed 10 per cent of the net income from all sources. Earned income means professional fees, salaries, and wages received as compensation for personal services, as distinguished from receipts from other sources.

The first \$3,000 of a physician's net income from all sources may be regarded under the law as earned net income, whether it was or was not in fact earned within the meaning set forth in the preceding paragraph. Net income in excess of \$3,000 may not be claimed as earned unless it in fact comes within that category. No physician may claim as earned net income any income in excess of \$14,000.

DEDUCTIONS FOR PROFESSIONAL EXPENSES

A physician is entitled to deduct all current expenses necessary in carrying on his practice. The taxpayer should make no claim for the deduction of expenses unless he is prepared to prove the expenditure by competent evidence. So far as practicable, accurate itemized records should be kept of expenses and substantiating evidence should be carefully preserved. The following statement shows what such deductible expenses are and how they are to be computed:

Office Rent.—Office rent is deductible. If a physician rents an office for professional purposes alone, the entire rent may be deducted. If he rents a building or apartment for use as a residence as well as for office purposes, he may deduct a part of the rental fairly proportionate to the amount of space used for professional purposes. If the physician occasionally sees a patient in his dwelling house or apartment, he may not, however, deduct any part of the rent of such house or apartment as professional expense; to entitle him to such a deduction he must have an office there, with regular office hours. If a physician owns the building in which his office is located, he cannot charge himself with "rent" and deduct the amount so charged.

Office Maintenance.—Expenditures for office maintenance, as for heating, lighting, telephone service and the services of attendants, are deductible.

Supplies.—Payments for supplies for professional use are deductible. Supplies may be fairly described as articles consumed in the using; for instance, dressings, clinical thermometers, drugs and chemicals. Professional journals may be classified as supplies, and the subscription price deducted. Amount currently expended for books, furniture and professional instruments and equipment, "the useful life of which is short," generally less than one year, may be deducted; but if such articles have a more or less permanent value, their purchase price is a capital expenditure and is not deductible.

Equipment.—Equipment comprises property of a more or less permanent nature. It may ultimately wear out, deteriorate or become obsolete, but it is not in the ordinary sense of the word "consumed in the using."

The cost of equipment, such as is described above, for professional use, cannot be deducted as expense in the year acquired. Examples of this class of property are automobiles, office furniture, medical, surgical and laboratory equipment of more or less permanent nature, and instruments and appliances constituting a part of the physician's professional outfit, to be used over a considerable period of time, generally over one year. Books of more or less permanent nature are regarded as equipment and the purchase price is therefore not deductible.

Although the cost of such equipment is not deductible in the year acquired, nevertheless it may be recovered through depreciation deductions taken year by year over its useful life, as described below.

No hard and fast rule can be laid down as to what part of the cost of equipment is deductible each year as depreciation. The amount depends to some extent on the nature of the property and on the extent and character of its use. The length of its useful life should be the primary consideration. The most that can be done is to suggest certain average or normal rates of depreciation for each of several classes of articles and to leave to the taxpayer the modification of the suggested rates as the circumstances of his particular case may dictate. As fair, normal or average rates of depreciation, the following have been suggested: automobiles, 25 per cent a year; ordinary medical libraries, X-ray equipment, physical therapy equipment, electrical sterilizers, surgical instruments and diagnostic apparatus, 10 per cent a year; office furniture, 5 per cent a year.

The principle governing the determination of all rates of depreciation is that the total amount claimed by the taxpayer as depreciation during the life of the article, plus the salvage value of the article at the end of its useful life, shall not be greater than its purchase price, or, if purchased before March, 1913, either its fair market value as of that date or its original cost, whichever may be greater. The physician must in good faith use his best judgment and claim only such allowance for depreciation as the facts justify. The estimate of useful life, on which the rate of depreciation is based, should be carefully considered in his individual case.

In a Treasury Decision, approved Feb. 28, 1934, No. 4422, it is held, among other things, that

1. The cost to be recovered shall be charged off over the useful life of the property.

2. The reasonableness of any claim for depreciation shall be determined on the conditions known to exist at the end of the period for which the return was made.

3. Where the cost or other basis of the property has been recovered through depreciation or other allowances, no further deduction for depreciation shall be allowed.

4. The burden of proof will rest on the taxpayer to sustain the deduction claimed.

5. The deduction for depreciation in respect to any depreciable property for any taxable year shall be limited to such ratable amount as may reasonably be considered necessary to recover during the remaining life of the property the unrecovered cost or other basis.

Particular attention is called to the last of the foregoing provisions. If, in prior years, rates have been claimed which, if continued, will fully depreciate the cost, less salvage, before the end of its useful life, based on conditions now known, a reestimate of the remaining useful life should now be made and the portion of the cost that had not been depreciated at the beginning of the year 1935 (for a return for the year 1935) should be spread over this reestimated life.

Medical Dues.—Dues paid to societies of a strictly professional character are deductible. Dues paid to social organizations, even though their membership is limited to physicians, are personal expenses and not deductible.

Postgraduate Study.—The Commissioner of Internal Revenue holds that the expense of postgraduate study is not deductible.

Traveling Expenses.—Traveling expenses, including amounts paid for transportation, meals and lodging, necessarily incurred in professional visits to patients and in attending medical meetings for a professional purpose, are deductible.

Automobiles.—Payment for an automobile is a payment for permanent equipment and is not deductible. The cost of operation and repair, and loss through depreciation, are deductible. The cost of operation and repair includes the cost of gasoline, oil, tires, insurance, repairs, garage rental (when the garage is not owned by the physician), chauffeurs' wages, and the like.

Deductible loss through depreciation of an automobile is the actual diminution in value resulting from obsolescence and use and from accidental injury against which the physician is not insured. If depreciation is computed on the basis of the average loss during a series of years, the series must extend over the entire estimated life of the car, not merely over the period in which the car is in the possession of the present taxpayer.

If an automobile is used for professional and also for personal purposes—as when used by the physician partly for recreation or so used by his family—only so much of the expense as arises out of the use for professional purposes may be deducted. A physician doing an exclusive office practice and using his car merely to go to and from his office cannot deduct depreciation or operating expenses; he is regarded as using his car for his personal convenience and not as a means of gaining a livelihood.

What has been said with respect to automobiles applies with equal force to horses and vehicles and the equipment incident to their use.

MISCELLANEOUS

Laboratory Expenses.—The deductibility of the expenses of establishing and maintaining laboratories is determined by the same principles that determine the deductibility of corresponding professional expenses. Laboratory rental and the expenses of laboratory equipment and supplies and of laboratory assistants are deductible when under corresponding circumstances they would be deductible if they related to a physician's office.

Losses by Fire or Other Causes.—Loss of and damage to a physician's equipment by fire, theft or other cause, not compensated by insurance or otherwise recoverable, may be computed as a business expense and is deductible, provided evidence of such loss or damage can be produced. Such loss or damage is deductible, however, only to the extent to which it has not been made good by repair and the cost of repair claimed as a deduction.

Insurance Premiums.—Premiums paid for insurance against professional losses are deductible. This includes insurance against damages for alleged malpractice, against liability for injuries by a physician's automobile while in use for professional purposes, and against loss from theft of professional equipment and damage to or loss of professional equipment by fire or otherwise. Under professional equipment is to be included any automobile belonging to the physician and used for strictly professional purposes.

Expense in Defending Malpractice Suits.—Expenses incurred in the defense of a suit for malpractice are deductible as business expense.

Sale of Spectacles.—Oculists who furnish spectacles, etc., may charge as income money received from such sales and deduct as an expense the cost of the article sold. Entries on the

physician's account books should in such cases show charges for services separate and apart from charges for spectacles, etc.

Missouri Income Tax

The State Auditor of Missouri gives the following information on the Missouri law:

Returns should be filed by March 15, 1936. Failure to file by that time subjects the taxpayer to a penalty which is his tax being doubled. A verified copy of the Federal return filed should be attached to the Missouri State Income Tax return. Returns should be filed with the City Assessor of St. Louis, or for those who reside outside of St. Louis, the return should be filed with the assessor of the county in which he lives.

All income received with the exception of dividends from national banks and interest on Liberty Bonds should be reported.

The personal exemption for married men is \$2000. Single persons, head of a household, that is, supporting one or more persons under one roof, are entitled to an exemption of \$2000. Single persons with no dependents are entitled to an exemption of \$1000. For each dependent there is an additional exemption of \$200 each.

All expenses on automobiles used for business may be deducted; that is, gasoline, oil, general upkeep and depreciation. Office expense may all be deducted including salaries and wages, material and supplies, rent, repairs, light, heat, electricity, telephone or whatever is involved in keeping up the office.

Subscriptions to all medical journals and dues to all medical societies are deductible as well as interest paid, taxes, losses by fire, storm or theft not compensated for by insurance. All donations to organized charities can be deducted but this amount is not to exceed 15 per cent of the net income shown on the return.

LADIES AND GENTLEMEN: YOUR HEALTH

February Radio Programs by the American Medical Association

February 4. "Pneumonia." Speaker, Dr. W. W. Bauer. How to avoid it and what medical science can do for you if you get it.

February 11. "Little Tips on Home Hygiene." Speaker, Dr. W. W. Bauer. Heating, fresh air, food, minor injuries and what to do in first aid, clothing, lighting.

February 18. "Heart Disease." Speaker, Dr. Morris Fishbein. Is it really increasing; what causes it; how to prevent it and how to live with it.

February 25. "Crippled Children." Speaker, Dr. W. W. Bauer. Injuries and diseases which cause crippling and what medicine, surgery and physical therapy can do for crippled children.

Each Tuesday afternoon at 4 p. m. on a coast-to-coast network of the National Broadcasting Company and on the short waves these programs will be presented.

BOOK REVIEWS

PRACTICAL CLINICAL PSYCHIATRY FOR STUDENTS AND PRACTITIONERS. By Edward A. Strecker, A.M., Sc.D., M.D., Professor of Psychiatry and Chairman of the Department of Psychiatry, School of Medicine, University of Pennsylvania, etc., and Franklin G. Ebaugh, A.B., M.D., Professor of Psychiatry, University of Colorado Medical School, etc. Fourth edition rewritten and enlarged. With sixty illustrations and a glossary. Philadelphia: P. Blakiston's Son & Co., Inc. 1935. Price \$5.00.

Drs. Strecker and Ebaugh have again placed before medical students, practitioners of medicine and neuropsychiatrists a thoroughly revised book; the previous three editions have been accepted as exceedingly valuable. Every one of the eleven chapters is worthy of the

reader's attention. In this review we can only call attention to a few of the important points in certain chapters. Adolf Meyer has written a brief foreword. The authors have drawn heavily on the valuable work and writings of this "Dean of Psychiatry." His influence may be noted throughout. In fact, the authors have suggested an "American School Psychiatry" centering around the principles and teachings of Adolf Meyer.

The first three chapters comprising about 100 pages are devoted to psychobiological problems and diagnostic criteria. The next six chapters comprising most of the balance of the work are devoted to "reaction types." While this term is designed to replace the older names for mental diseases, yet the authors call attention to the prevailing nosology, including the Kraepelinian system for naming psychiatric diseases. The last chapter concerns "Psychopathological Problems of Childhood" by Leo Kanner.

Drs. Strecker and Ebaugh call our attention to the fact that possibly heredity has been overrated in furnishing unnecessary gloomy prognosis. That improvements and recoveries are possible even with a badly loaded ancestry. We heartily agree with their statements relative to this question. All forms of therapy are discussed at least briefly. Fever therapy for neurosyphilis and some other psychiatric disturbances, as originally outlined by Wagner von Jauregg, is adequately amplified. Attention is called to the fact that both the tertian and quartan types of plasmodia have been successfully used. Other methods of applying heat therapy, including the more elaborate Kettering electrical apparatus, are described. The many types of the epilepsies are mentioned. The various newer methods of treating in handling epileptics are given only a brief consideration.

The authors have handled the subject of the psychoneuroses quite judiciously. They stress the importance and great frequency of this big borderline group in the fields of neuropsychiatry, general medicine and surgery. They include in this group hysteria, compulsion neuroses, neurasthenia, psychasthenia, anxiety neuroses and traumatic neuroses. We had hoped that they might be able to make closer distinctions between these six varieties. This difficulty is fully appreciated by every long trained or experienced neuropsychiatrist.

This work can be highly recommended to almost any worker in the field of medicine where there may be a direct or indirect interest in mental mechanisms.

A. L. S.

THE STOMACH AND DUODENUM. By George B. Eusterman, M.D., F.A.C.P., Head of Section in Division of Medicine, The Mayo Clinic, Professor of Medicine, The Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota, and Donald C. Bolfour, M.B., M.D. (Tor.), LL.D., F.A.C.S., F.R.A.C.S., Head of Section in Division of Surgery, The Mayo Clinic, etc., and Members of the Staff, The Mayo Clinic and The Mayo Foundation for Medical Education and Research. Graduate School, University of Minnesota. Illustrated. Philadelphia and London: W. B. Saunders Company. 1935. Price \$10.00.

This book represents not only the authors' individual work but also that of a group of specialists correlating their actual experience in a large number of cases. It is founded upon a remarkably clear concept of the underlying physiology and pathology of the stomach and duodenum.

The style is direct and concise, yet so comprehensive

that one marvels at the wealth of material they have included in one volume.

The illustrations are beautiful and accurate, particularly those relating to roentgen diagnosis and to surgical technic.

Every student of the subject should read this book. It is destined to occupy an important place as a reference work for both the medical and surgical specialist.

H. W. S.

THE PATHOLOGY OF INTERNAL DISEASES. By William Boyd, M.D., M.R.C.P., Ed., F.R.C.P., Lond., Dipl. Psych., F.R.S., Can., Professor of Pathology in the University of Manitoba; Pathologist to the Winnipeg General Hospital, Winnipeg, Canada. Second Edition, thoroughly revised. Illustrated with 335 engravings. Philadelphia: Lea & Febiger. 1935. Price \$10.00.

As in the first edition of this book the pathology of internal diseases is presented especially from the clinical and physiological points of view. Excellent descriptions are given of the gross pathological appearance of organs and its clinical results. The clinical relation of symptoms to lesions is emphasized. The discussion of the pathology of diabetes is an excellent example of the physiological-pathological approach to an understanding of internal diseases. An almost clinical discussion is given of the etiological factors involved in pathological processes.

Numerous sections have been rewritten and brought abreast of present-day knowledge. These have involved alterations, especially in the sections on the anaemias, diseases of the pituitary gland, parathyroid tumors, agranulocytic angina, the etiology of peptic ulcer, bronchiectasis and jaundice; also on tumors of the pleura, silicosis, cirrhosis of the liver and the bacteriology of influenza.

A broadening outlook, which is usually absent in books on pathology, is the addition of historical facts in relation to the development of our knowledge of various pathological processes.

The illustrations are adequate and excellent in quality though not profuse. The book as a whole fills a place in unifying the teaching of pathology and of clinical medicine not often encountered.

W. B.

DISEASES OF THE NERVOUS SYSTEM. A Text-Book of Neurology and Psychiatry. By Smith Ely Jelliffe, M.D., Ph.D., Formerly Professor of Psychiatry, Fordham University, New York; Formerly Adjunct Professor of Diseases of the Mind and Nervous System, New York Post-Graduate Medical School and Hospital; Managing Editor Journal of Nervous and Mental Disease, and William A. White, M.D., Superintendent of St. Elizabeth's Hospital, Washington, D. C.; Professor of Psychiatry, George Washington University, and Lecturer on Psychiatry, U. S. Army and U. S. Navy Medical Schools. Sixth Edition, Thoroughly Revised. Illustrated with 497 engravings and thirteen plates. Philadelphia: Lea & Febiger. 1935. Price \$9.50.

This comprehensive volume covering both the field of neurology and of psychiatry in this edition has included some of the advancement in our knowledge since the previous edition. One is disappointed in some minor respects; for instance, in not finding any completeness with regard to the effects of electricity and carbon monoxide upon the nervous system. On the whole the volume in its present form continues to uphold its previous record.

F. M. B., Jr.

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CLINICAL MANIFESTATIONS OF ANORECTAL DISEASE

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Patients with anorectal disease often have referred symptoms which are produced either as nervous reflexes or as manifestations of focal anorectal infection. Because the referred symptoms command his attention the patient may fail to mention such discomforts as slight protrusion or anal irritation, and consequently there may seem to be no indication for making a rectal examination.

In order to determine the relationship between these symptoms and anorectal disease, an analysis was made of two hundred and twenty-five consecutive private case records. For diagnostic convenience, referred symptoms were classified as neurological, gastro-intestinal, genito-urinary and rheumatic. Such symptoms

were found in seventy (31 per cent) of the two hundred and twenty-five patients. When these symptoms occurred there were generally from three to five of them associated with one another. The incidence of symptoms was tabulated from the case histories. The progress records were then referred to and the final result was listed for each symptom under the heading of cured, improved or unimproved. (Table 1.)

NERVOUS DISTURBANCES

Symptoms representative of two or more groups are frequently found in the same patient. Where a number of groups are represented in the same patient he is of the type which has been called neurotic or neurasthenic. In this type of individual the rectal symptoms per se are often quite mild, sometimes being manifest only as a very slight discomfort after defecation, a sense of weight, anal itching, or slight aching across the sacrum radiating down the backs of the legs. This latter symptom the patient interprets as being due to his general condition and because he is tired all the time. Mixed types, where the referred symptoms are of long duration and have become severe, sometimes lead to the most bizarre clinical pictures. We may cite the following cases.

REPORT OF CASE

Case 1. Miss G. M., aged 34, stenographer, seen June 27, 1934.

Chief Complaint.—Chills and fever; nervousness and crying; pain in the left lower abdomen; aching across the sacrum and down the legs; menstrual irregularities.

Present Illness.—For the last four years there has been pain after defecation, almost constant aching across the lower back and down the legs, pain in the left lower abdomen, and irregularity of the menses. For the last five months she has taken daily enemas to prevent pain after defecation. These enemas were invariably followed by a chill and a fever of 104 to 105 degrees, with a return to normal in about eight hours. She has been unable to sleep at night, has been very nervous, has cried for hours at a time, and in short has been "a nervous wreck." Three months ago she entered the hospital because of nervousness, weakness, pain in the left lower abdomen, and to determine the cause of the chills and fever after enemas. She re-

Table 1. Incidence and Result of Treatment

Symptom	Incidence	Cured	Improved	Unimproved	No Report
Nervousness	35	16	16	1	2
Constipation	32	13	15	2	2
Backache	27	19	5	1	2
Leg pains	23	17	6	0	0
Irritability	11	6	3	0	2
Flatulence	12	6	4	2	0
Indigestion	10	6	3	1	0
Crying	10	5	3	0	2
Abdominal cramp	9	6	1	1	1
Malaise	7	7	0	0	0
Insomnia	7	5	2	0	0
Bladder disturbance	6	2	2	2	0
Nausea	5	4	1	0	0
Fever*	5	4	1	0	0
Fainting	5	5	0	0	0
Arthritis	5	4	1	0	0
Chills	4	4	0	0	0
Menstrual disturbance	4	4	0	0	0
Coccygodynia	4	4	0	0	0
Perineal pain	3	1	1	1	0
Diarrhea	2	2	0	0	0
Vomiting	2	2	0	0	0
Cardiac disturbance	2	1	0	0	0
Migraine	1	0	1	0	0
Total	231	143 (62%)	65 (28%)	12 (5%)	11 (5%)

*Fever when reported was not due to evident cause such as abscess.

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maintained at the hospital for two weeks and was discharged unimproved.

Past History.—Appendectomy in 1917. Salpingectomy three years ago to relieve the pain in the lower abdomen; no relief.

Examination, Treatment and Results.—Examination on July 5, 1934, revealed acute cryptitis, papillitis, a posterior anal ulcer with a sentinel pile, and external skintags.

On July 6 the crypts, papillae, ulcer and skintags were excised. On July 9 she was given her first post-operative enema which was followed by a chill, a fever of 103.5, nausea and vomiting. Temperature returned to normal in three hours. The next day the enema was again followed by nausea and vomiting but without a chill or fever. She was less nervous from that time on and all symptoms rapidly improved. In six weeks she had gained eight pounds, was no longer constipated, was not nervous nor irritable, and had two normal menstrual periods. Nine months after operation she stated that her menstrual periods had been normal and that she was absolutely well. When first seen she weighed ninety-eight pounds; she now weighs one hundred and thirty-five pounds.

COMMENT

This case illustrates the effect which rectal disease may have on the general symptomatology of a patient. The nervousness, crying and irritability were due to reflex disturbances of the sympathetic nervous system caused by the cryptitis and the posterior anal ulcer. The pain in the back and down the legs was due to the focal infection in the crypts and in the ulcer. The menstrual disturbances were reflex and are explained by the common sympathetic and parasympathetic innervations of the rectum, uterus and ovaries. The chills which followed the enemas were due I think to anal trauma causing rapid absorption of bacterial proteins from the anal infection, the patient's reaction simulating the after-effects of the administration of a vaccine.

REPORT OF CASE

Case 2. Mrs. C. C., aged 51, housewife, seen March 15, 1935.

Chief Complaint.—Nervousness and indigestion. Mild aching in the rectum.

Present Illness.—During the last year the patient has had a "weak, let-down" feeling occurring immediately after defecation and lasting from thirty minutes to one hour. For one year, she has been on an almost exclusively liquid diet because she could not tolerate solid foods without nausea and vomiting. For about two years she has been very nervous and irritable, has cried almost daily without provocation and has taken amylal three or four nights a week to obtain sleep. A rectal examination was attempted about six months ago but the patient was so nervous and apprehensive that she would not allow her physician to insert his finger into the rectum.

Past History.—For years patient has had digestive disturbances evidenced by gas, a feeling of fullness in the stomach and intestinal distention. She has been constipated for fifteen years and has taken a laxative almost daily for four or five years. Had malaria fifteen years ago. There have been no serious illnesses or operations.

Examination, Treatment and Results.—Anorectal examination revealed two narrow fibrous papillae one inch long which herniated into the anal canal. There were also two inflamed crypts. The anus was stenosed to the point that it would barely admit the little finger.

On March 16 patient was operated on and the crypts and papillae were excised and the perianal fibrous band incised. While she was still in the hospital she was given a general low-residue diet which she ate and enjoyed without nausea or vomiting. In two weeks she was sleeping all night without a sedative, which she had been unable to do for two years. She is now on a general diet, has no indigestion and is free from nervousness. The constipation is almost entirely relieved and she feels better than she has for years.

COMMENT

The nervousness, crying and digestive disturbances were purely reflex through the sympathetic and parasympathetic nervous systems. The constipation was due largely to the anal stenosis which prevented the expulsion of any but a very soft stool. Excision of the vermiform papillae which hung down into the anal canal removed the exciting factor of these reflexes.

MENSTRUAL DISTURBANCES

One quite naturally would feel that symptoms of nervousness, irritability and crying associated with menstrual irregularities or abnormality would probably be due to uterine, ovarian, thyroid or pituitary dysfunction. We should not overlook the fact that such dysfunctions may be secondary to other disease. Inasmuch as the uterus, ovaries and thyroid all have direct connection with the rectum through the sympathetic and parasympathetic fibres we should keep in mind that menstrual dysfunction may be a secondary manifestation of rectal disease.

REPORT OF CASES

Case 1. Miss J. R., aged 18, student, seen June 26, 1934, referred by her physician who thought there must be some connection between an amenorrhea of four months' duration and anal pain on defecation. Menstrual periods had begun at twelve years of age and were regular at five week intervals until November, 1933. For the five months from November, 1933, until March, 1934, the periods were irregular and they had been absent from March, 1934, until June, 1934.

Patient was nervous and irritable and cried at the slightest provocation. Examination revealed an acute cryptitis, an acute papillitis and a posterior anal ulcer. These structures were excised under caudal anesthesia the following day. Since that time the menstrual periods have been regular and all signs of nervousness have disappeared.

Case 2. Miss G. M., aged 34, whose case was outlined under general nervousness, has had no menstrual irregularities since operation although menstrual irregularity had existed for four years. In her case also there was an anal ulcer and associated cryptitis.

COMMENT

It is my belief that the menstrual irregularities in these two patients were due to reflex ef-

fects upon the genital organs and glands of internal secretion.

Case 3. Mrs. V. R., aged 29, cashier, seen March 12, 1934.

Chief Complaints.—Amenorrhea. Chills and fever. Pencil stools. A mass in the left lower abdomen. Anemia and weakness.

Present Illness.—Three years ago patient was operated on for rectal stricture. In February, 1933, she had malaria which was diagnosed by blood smears. In June, 1933, she noted a small tender mass in the left lower abdomen. Since then there has been a constant purulent drainage from the rectum and a persistent amenorrhea. Patient gradually became weak and anemic and at times the mass in the abdomen would enlarge slightly; she would have chills and fever and then would be relieved by the passage of large amounts of pus from the rectum with decrease in the size of the abdominal mass. When first seen she had been in another hospital for three months awaiting a time when she could be safely operated on to remove the pelvic mass. While in this hospital numerous rectal and vaginal examinations had invariably been followed by chills and a fever of 103 to 104.

Examination, Treatment and Results.—Examination revealed a stricture of the rectum four inches long, a mass three inches in diameter in the region of the left broad ligament and marked anemia. Patient weighed ninety pounds. Red blood count was 3,500,000; white count 6,000. Frei test for lymphopathia venerea (lymphogranuloma inguinale) was positive. Diagnosis; rectal stricture due to lymphopathia venerea. Patient was given a blood transfusion and the next day I performed a double-barrel colostomy. The rectum was then irrigated through the lower colostomy loop during convalescence.

In April, 1935, this patient reported normal regular menstrual periods ever since operation. Her weight has increased fifteen pounds and she feels entirely well. She has had a daily normal bowel movement through the colostomy which on only one occasion caused her any inconvenience. On that occasion she suffered from food poisoning which caused a diarrhea.

COMMENT

The chills and fever after rectal and vaginal examinations were due to the absorption of infectious by-products. The amenorrhea was due to reflex disturbances of the uterus and ovaries with the added factor of the broad ligament abscess. This abscess was resolved through drainage into the lower loop of the colostomy. I wish to use this case also to show that one can live a normal happy life with a colostomy providing it has been properly performed and properly taken care of.

SACROCOCCYGEAL PAIN

Painful, tender coccyx, termed coccydynia or coccygalgia, is a complaint which has been considered due to many different etiological factors. The most reasonable explanation would seem to me to be that of Hirschman, who regards it as being caused by an arthritis of the sacrococcygeal articulation, most often due to focal anal infection. To this idea of Hirschman's I wish to add the factor of spasm of one or both of the

levator ani muscles, pulling the coccyx laterally or forward.

REPORT OF CASE

Case 1. Mrs. A. W., aged 36, housewife, was seen January 23, 1935.

Chief Complaint.—Aching in the region of the coccyx and sacrum for the last three months.

Present Illness.—Aching in the sacrococcygeal area began three months ago and has gradually increased in severity until she is unable to do her housework except for very short periods of time. There has also been pain in the left knee joint. Patient has been very nervous. During the last two weeks there has been some pain with defecation.

Examination, Treatment and Results.—There were small internal hemorrhoids and three small crypts one of which was inflamed. There was also marked spasm of the posterior fibres of the left levator ani muscle. (This portion of the muscle attaches to the side of the coccyx.)

In order to determine whether the pain in the coccyx was due to the anal infection primarily or to the spasm of the levator ani muscle, treatment of the cryptitis was discontinued after the third office visit when there was only slight if any improvement. The left levator ani was still spastic. During the next seven weeks the left levator was massaged on eleven different occasions. At the end of this time all pain in the coccyx had vanished, the left knee was no longer painful and the left levator ani was not spastic. Patient has had no treatment since that time and states that she has had no coccygeal pain except on one occasion when she stood and ironed for three hours without rest. She is sleeping normally, is much less nervous and her general health is much improved.

COMMENT

Treatment of the cryptitis was purposely neglected in this case in order to determine the role which spasm of the levator ani was playing in the production of the coccygalgia. I have advised the patient that the infected crypt should be excised in order to eliminate the focus of infection.

A chief complaint of pain in the coccyx has been relieved in three other patients by proper attention to anal infection and levator spasm, but time does not permit recitation of their cases. Four other cases of arthritis of the large joints have also been completely relieved by the excision of anal foci of infection. In two of these the patients had been hospitalized with a diagnosis of acute rheumatic fever.

DISTURBANCES OF URINATION

We are reminded of the role which rectal disease may play in the production of urinary symptoms by the rather frequent inability of the patient to void easily after a rectal operation. The mode of production of these urinary disturbances is explained by the fact that the bladder represents the anterior division of the hindgut, caused by the descent of the cloacal septum at about the fourteenth week of fetal life, and that the bladder and the rectum have the same innervations. The following case his-

tories exemplify the effect which an anorectal lesion may have on the bladder function.

REPORT OF CASES

Case 1. Mrs. R. M., aged 64, housewife, seen December 5, 1932.

Chief Complaint.—A sense of weight and pressure in the rectum, associated with frequent voiding of small amounts of urine.

Present Illness.—Patient was well until three days ago when she noticed a sense of heaviness in the rectum and since then has had to urinate small amounts at half hour intervals.

Examination, Treatment and Results.—Examination showed a normal urine. There was an acute proctitis, the rectal mucosa was hyperemic, dark in color and bled freely on wiping with a cotton applicator. Patient was treated with local irrigations of an acriflavine solution and at the end of four days the rectum was normal and all urinary symptoms had ceased.

Case 2. Mr. J. H., aged 40, automobile salesman, referred in September, 1933, by a urologist who had been unable to find sufficient cause for the chief complaint of a burning sensation in the perineum and a feeling of incomplete emptying of the bladder. Prostatic massage, urethral dilatation and treatment of the verumontanum had given no relief.

Examination, Treatment and Results.—Rectal examination exposed a generalized surface infection of the anal canal with multiple anal erosions and two deep infected anal crypts. Local treatment for two weeks resulted in complete cessation of symptoms for one year when the anal infection recurred and all symptoms returned. There have been two other recurrences with cessation of symptoms after treatment. This patient refuses to have the infected crypts excised, preferring rather to come in for occasional treatment.

SUMMARY AND CONCLUSIONS

Referred symptoms occurred 231 times in seventy (31 per cent) of a series of two hundred and twenty-five patients.

Of the 231 symptoms found, 143 (62 per cent) were cured, 65 (28 per cent) were improved and 12 (5 per cent) were unimproved by surgical or nonsurgical treatment of the anorectal lesions encountered.

Neurologic, gastro-intestinal, genito-urinary and rheumatic symptoms are frequently caused by anorectal disease. When such symptoms are encountered inquiries concerning the anus and rectum should be included in the clinical history and a rectal examination should be made. Digital examination alone is not sufficient as many of the lesions are not palpable. Such lesions when located at or near the anus may be seen with an anoscope. This instrument is inexpensive and its use is simple.

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HYPOGLYCOSURIA IN CRETINISM

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Cretinism being easy to diagnose should have treatment begun in the first few weeks of life. The results of therapy are immediate and a normal child instead of an imbecile will result.

The following case has been of special interest because it shows what can be accomplished by therapy and what can be lost by the discontinuance of thyroid.

REPORT OF CASE

I first saw this patient ten years ago. He was 4 months old and weighed 22 pounds, a clinical picture of cretinism. He seldom cried, made no effort to grasp objects and was badly constipated. There was a pseudo-edema over the entire body, the abdomen large, the lips and tongue thick, the pulse slow, the liver and spleen palpable and the hair thin and dry. One quarter grain of thyroid was given three times a day and immediately signs of improvement were seen. At the age of 9 months he was taking 1 grain three times a day, weighed 19½ pounds and was able to sit up when assisted. At 14 months he could sit up alone, weighed 21 pounds and was getting 1½ grains three times daily. When he weighed 22½ pounds at the age of 22 months he was beginning to walk. At this time, however, his parents discontinued therapy and for eight years the patient was treated by a chiropractor.

He gradually grew worse and returned to me at the age of 10 years. He was then 46½ inches tall and weighed 52 pounds. His mentality was that of a 7 or 8 months old child; he was able to walk but could not talk. He swallowed with difficulty and suffered from a peculiar form of indigestion. The attacks of indigestion would come on immediately after taking food. Apparently, this was due to an acute dilation of the stomach. General convulsions resembling epilepsy were frequent and lasted for from two to five minutes. Another peculiarity was that he would pat his chest with his hands then suddenly clasp his head and scream as if in severe pain. Defecation was possible only after enemas. He obeyed only the simplest commands. He was not destructive but let other children remove objects from his hands without resentment. His complexion was pasty and on his fingertips was a peculiar nicotine-like stain which could not be removed with the ordinary solvents. According to past history this had been present for the last two years. The temperature was normal, the pulse slow and weak, the teeth showed early decay and the hair was thin and dry. There was a general pseudo-edema over the entire body, the lips and tongue were thick and the muscles of



Fig. 1. Patient at the age of 4 months; weight, 22 pounds.

the extremities resembled muscular dystrophy. The liver and spleen were palpable, the genitalia well developed and all reflexes were sluggish. The blood creatinine was insufficient for determination and the



Fig. 3. Patient at the age of 14 months; weight 21 pounds.



Fig. 2. Patient at the age of 9 months; weight, 19½ pounds.



Fig. 4. Patient at age of 10 years, eight years after treatment was discontinued.

blood sugar was 40. This low sugar was probably responsible in part for his convulsive seizures. On August 9, one-half grain of thyroid was given three times daily and 5 ounces of sugar was put in the daily diet with the hope of increasing the blood sugar content. I realize that the addition of sugar does not necessarily raise the blood sugar but it does fill the glycogen depots of the body. Apparently, his pancreas was overfunctioning due to the lack of the antagonistic effect of the thyroid.

On August 23 the creatinine was .7 mg. and the sugar 53.9. Thyroid was increased to 1 grain three times daily and on August 30 the creatinine was 1.3 and sugar 65.8, weight was 52½ pounds. For the first time in three years he had a normal bowel movement and his convulsions were less frequent. On September 27 the creatinine was normal and the sugar 50; his convulsions had disappeared and he was attempting to speak for the first time. His facial expression had undergone a marked change; he obeyed commands, took a keener interest in his surroundings and was a changed individual in every respect.

This case was interesting from the following points of view:

(1) A low blood sugar should be found in all cretins. There was a slight rise when glucose was added to the diet but this was only temporary. Apparently, a complete emptying of the stores of glycogen had occurred which is common in hypothyroidism.

(2) The low blood creatinine as is usually found in hypothyroidism should be exceptionally low in all cases of cretinism. The peculiar stain on the fingertips has, as far as I have been able to investigate, not been described in previous cases of cretinism.

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PREVENTION OF BIRTH INJURY AND ITS RESULTING MORTALITY FROM THE STANDPOINT OF THE OBSTETRICIAN

Charles Edwin Galloway, Evanston, Ill. (Journal A. M. A., Feb. 15, 1936), points out that birth injury may occur in any type of delivery. Therefore, it is essential that a careful explanation be given to parents, and the most valuable explanation comes from the consultant, most often the pediatrician, who is not present at the birth. The incidence of birth injury is very difficult to ascertain. At the Evanston Hospital, investigation of the last 5,000 deliveries reveals that there were fifty-one major injuries including fatal cerebral hemorrhage. Besides these there were thirty-seven minor injuries including abrasions from forceps and other contusions of minor importance. At the same hospital an analysis of the fetal autopsies for the last ten years shows that 34 per cent of these fetal deaths including premature babies were due to cerebral hemorrhage. It also shows that 40.6 per cent of the autopsies on full-term babies dying at birth demonstrated cerebral hemorrhage. Of the various injuries cerebral hemorrhage, no doubt, occupies the primary position as to both severity and mortality. The author discusses the therapy and possible prevention of cerebral hemorrhage, brachial palsy, fractured clavicle, facial paralysis, sternomastoid muscle injury, rupture of the liver and breech delivery.

AN INSTITUTIONAL OUTBREAK OF SHIGA DYSENTERY AND ITS CONTROL

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HISTORICAL

Dysentery has been known since ancient times. Hippocrates differentiated dysentery from diarrhea; but later writers used the term for an intestinal "flux." The word "dysentery" is a clinical one for a condition of diarrhea with pain and tenesmus. As various intestinal diseases were being recognized as specific, the term became limited to the diphtheritic and ulcerative conditions of the mucosa of the large intestine. With the identification of the typhoid bacillus and the cholera vibrio as causes of specific diseases and with the general advance in the knowledge of the etiology of disease, it was thought that dysentery was caused by specific microorganisms. A number of organisms were isolated by various workers and considered to be the cause of dysentery.

With the finding of amebae in the stools of man the question became complicated. Amebae were found in the stools of healthy persons as well as in the stools of patients with dysentery. There were epidemics of dysentery in which no amebae were found in the stools. Kartulis considered that amebae were the cause of dysentery in Egypt and his findings were confirmed by Osler, Councilman, Lafleur, and others. Schaudinn cleared up the question of amebae in dysentery by finding two species of amebae in the intestine of man; one, a harmless commensal which was found in the stools of healthy men, and the other pathogenic causing dysentery.

But there were epidemics of dysentery in which no amebae were found in the stools. Councilman and Lafleur made an extensive study of the lesions of dysentery and reviewed the literature on this disease in different parts of the world. They concluded that "the lesions in most of the epidemics of dysentery" in Europe, England, Ireland, and the Bay View Almshouse of Baltimore, "are those of diphtheritic colitis"; and that "diphtheritic colitis is a distinct affection," that the lesions produced by amebae have nothing to do with "diphtheritic colitis." Councilman then gave an excellent description of the pathology of diphtheritic dysentery. During a severe epidemic in Japan in 1898, Shiga¹² found a bacillus in the stools of dysentery cases and in the mesenteric glands of persons dead of the disease. This bacillus was agglutinated by the serum of dysentery patients.

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Shiga considered it to be the cause of the disease. In 1900 Kruse found a bacillus as the cause of a dysentery epidemic in Germany. Flexner and Strong reported a bacillus as the cause of dysentery in the Philippine Islands. In 1903 the "Y" bacillus was isolated by Hiss and Russell³ from a fatal case of diarrhea in a child.

Martin and Lentz showed that the bacilli of Shiga and Kruse were agglutinated alike by specific agglutinating serum, but that they were different from other dysentery bacilli. Further work showed that the organisms isolated by Shiga and Kruse did not produce acid in mannite while other dysentery bacilli did; accordingly, the Shiga-Kruse organism was called the nonacid type and the other organism the acid type. By their action on other sugars the acid type was broken up into a number of strains. The Hiss and Russell bacillus "Y" was found to be the same as the organism which Kruse had found in asylum dysentery and had called it a pseudodysentery bacillus, as he considered it did not produce a true dysentery. Clinically, the Shiga-Kruse bacillus causes a more severe disease than does the acid type of dysentery bacillus. Hence Kraus and Doerr called the Shiga-Kruse or nonacid type, the "toxic," and the Flexner Y or acid type, the atoxic or "toxin poor" type.

During the past few years, and especially during the World War, a number of other organisms have been reported as the cause of dysentery, so that, at present, there is some confusion as to the extent of the group of dysentery bacilli; but certainly the Shiga-Kruse type and the Flexner Y type are the most important types causing bacillary dysentery.*

DISTRIBUTION

Bacillary dysentery is found throughout the world being more prevalent in tropical than in the temperate climates. It has been a scourge in many wars. More deaths were reported from bacillary dysentery than from any other disease during the Civil War. It was prevalent in the Boer War and in the Russo-Japanese War. It was frequent in the World War. The German troops in particular suffered severely, about one fourth of the cases being due to the Shiga-Kruse organism and three fourths due to the Flexner Y bacillus. During and following the World War, the disease was frequently found among the civilian population of Europe. Epidemics were reported in Germany in 1917 and severe epidemics were found in Vienna in 1917-1918.

The disease occurs in asylums and institutions throughout the world. The Y type of ba-

cillus is reported chiefly in these outbreaks. Bacillary dysentery is being recognized and is being reported more frequently to boards of health in various parts of the United States. It must be remembered that sporadic cases can and do occur in localities, where, and at times, when no epidemic prevails. The dysentery bacillus plays an important part in diarrheas of children when there is blood and mucus in the stools.

REPORT OF CASES

Case 1. On February 28, 1934, while making ward rounds in the State Hospital No. 1 at Fulton, Missouri, the charge attendant on the ward for untidy, disturbed male patients, directed my attention to an elderly patient who, he stated, had a diarrhea with a number of watery stools on the previous day. During the night blood had been observed in the stools in considerable quantity. The patient did not complain greatly but his anxious facial expression made one believe he was severely ill. His temperature was 105.6° F., pulse 126, respirations 40 per minute. He had some tenderness along the course of the colon and strained at stool. He was ordered to the hospital immediately where symptomatic and supportive treatment was given to no avail. He died of the disease on March 1, 1934. No definite diagnosis was made as to the cause of his dysentery.

The recent outbreak of amebic dysentery in Chicago and reports of sporadic cases in this section of the state led me to believe that this was a case of amebic dysentery. Examination of the stools revealed no amebae.

Case 2. On March 2, 1934, a second case appeared on the same ward, with diarrhea, blood in the stools, rectal tenesmus, and abdominal pain. Temperature was 105° F., pulse 135, respirations 20 per minute. Again the stools were examined for amebae without results. Under symptomatic treatment improvement was noted. His temperature subsided on the second day and the blood soon disappeared from his stool. This patient recovered after a rather lengthy convalescence.

Case 3. On March 7, 1934, a third patient was reported with the same general symptoms as the two previous cases. His temperature was 101.8° F., pulse 114, respirations 26 per minute. The stool was sent to the laboratory for culture.

Stool examination.—Grossly it was mucopurulent in appearance with quantities of bright red blood. No fecal matter was found. The odor was cadaveric. Microscopic examination revealed great numbers of leukocytes and red blood cells. Short Gram negative, intracellular and extracellular bacilli occurring frequently in pairs were found on smears.

Bacteriology.—Cultures on eosin methylene blue agar grew colorless to light blue colonies. The organism did not form indol on Dunham's peptone media, gelatin was not liquified, acid was formed on dextrose, no acid on mannite. On Russell's double sugar agar no acid was formed on the slant; acid was formed on the butt.

Agglutination tests with rabbit's agglutinating serum gave positive agglutination in the Shiga strain with very faint agglutination in Flexner.

From the lack of acid production on mannite and the positive agglutination in the Shiga serum, it was determined that the Shiga dysentery bacillus was the offending organism in each of the above cases, and an epidemic of unknown proportions was anticipated. All cases having a diarrhea were ordered isolated with the usual precautions of a typhoid patient. The ward on which the cases were developing was quarantined for a period of one month following the development of the last case. During this time extra precautions were

*Historical review is partly taken from Nelson's Loose Leaf Living Medicine.

taken in the handling of food. The lavatory was supervised, compelling all patients to wash their hands in 0.5 per cent lysol solution after using the toilet. The toilets and toilet room were scrubbed daily with a 0.5 per cent lysol solution. Extreme precautions for cleanliness were observed.

Agglutination tests were performed on all patients and attendants on the ward. Through these tests, a patient working in the dining room, serving this ward, was found to give a positive agglutination of the Shiga bacillus in a 1:100 dilution of serum. This patient was thought to be a carrier of the organism and was removed from the dining room. Agglutination tests were done on all kitchen workers in the hospital with no positive findings. All patients and attendants on this ward were given a prophylactic dose of polyvalent antidyenteric serum intramuscularly. No new cases developed after March 11, 1934. A total of ten cases constituted the epidemic and were all confined to one ward in the hospital.

Case 3. It was from this patient the organism was isolated and the case ran a long stormy course with several relapses. The bleeding from the colon was profuse at times, the stool containing what appeared to be pure blood. A month following the onset of his illness he was very asthenic with a weak, irregular pulse. Slight improvement was noted earlier in the course of his disease following large doses of polyvalent antidyenteric serum intravenously. At this time recovery seemed impossible. His body fluids were maintained by intravenous and subcutaneous fluids. His dysentery was eventually controlled by a series of 2 per cent tannic acid colon irrigations. His heart was supported by hypodermic injections of caffeine sodium benzoate as needed. His red blood cell count had dropped to 1,440,000. Continued supportive and symptomatic treatment was sufficient to aid in his recovery. He had a long convalescence of about six months and seems well at present.

Case 4. The fourth patient presenting symptoms was noted first on March 7, 1934. He seemingly had an overwhelming infection. His stools were loaded with blood and appeared as huge clots. His temperature was 96.6° F., the pulse irregular and thready. He died on the same day. On postmortem examination, the ileum and colon were found to be extremely injected externally. The regional lymph glands were enlarged. On opening the colon and ileum, small punched out ulcers were noted in the sigmoid colon. The mucosa of the colon was engorged with blood and was edematous. This inflammation extended into the ileum and well toward the jejunum.

Six more cases developed in the following four days but were of a milder nature. A watery diarrhea was noted with little or no blood in the stool. These cases ran a course of from three to five days, then, recovered without having seemingly been very ill. These cases were, no doubt, recognized earlier in their course than the previous ones. The early intravenous administration of large doses of polyvalent antidyenteric serum may have had some bearing on the duration of their illness. One of these cases died four days after an apparent recovery from his dysentery. Death was attributed to myocardial failure. A fourth patient died a year following the epidemic of generalized arteriosclerosis and myocardial failure. On postmortem examination, besides generalized arteriosclerosis and its complications, the colon was found to be bound down with bands of adhesions throughout its entire course, particularly at the hepatic and splenic flexures. On gross examination the mucosa was atrophied and the wall of the colon was thin.

CLINICAL ASPECTS

In table 1 are listed the most important symptoms, physical, and laboratory findings. It is noted that the majority of patients were above fifty years of age. Their appearance ranged from that of extreme toxicity to normal. The highest temperature readings varied from 105.6° F. to 96.6° F., the highest pulse rate from 135 to 86 per minute. All patients complained of abdominal pain and tenderness in varying degree. Rectal tenesmus was usually present. The stools were watery at first, turned to mucoid with blood on the second day if blood appeared. The number of stools ranged from five or six to twenty per day. Those having the more severe dysentery would remain on the toilet for long periods of time, straining almost continuously. Most stools had an offensive cadaveric odor. In four patients the stools contained much blood; in one patient the blood persisted for six days and in another for thirty days. The leukocyte count in three patients ranged from 25,800 to 7400 cells with a percentage of neutrophils of 89 and 79 respectively. Two patients died of the disease and a third patient died four days after an apparent recovery of myocardial failure, giving a mortality of 30 per cent.

AGGLUTINATION TESTS

A year following the epidemic of Shiga dysentery agglutination tests were done on the six surviving patients. Stock cultures of Shiga and Flexner dysentery bacilli were obtained from the bacteriology department of the University of Missouri School of Medicine to perform these tests. All patients' serum agglutinated the Shiga bacillus in high dilution of 1:640 with one exception, this being in a titre of 1:320. It is also observed that there was an agglutination of the Flexner organisms in titres varying from 1:40 to 1:320. The agglutination response of the Flexner bacillus is no doubt due to the group agglutinins present in the sera of these patients. The high titre in which the Shiga organism was agglutinated a year following the disease makes it certain that it was the offending organism in each of the cases of this outbreak.

Fifteen normal controls were chosen from the patients on this ward. Control 13, who was thought to be the carrier of the organism, gave an agglutination response to the Shiga bacillus a year ago in a titre of 1:100 and this year in 1:80. Eight patients' sera did not agglutinate either organism. Those patients whose sera gave positive agglutination tests in low dilutions a year ago gave positive agglutination tests again this year. Only in one instance, that of control

Table 1. *A Summary of Symptoms and Findings*

Case	Appearance	Highest Temperature	Highest Pulse	Symptoms	Duration in Days	Stool: Frequency and Character	Leukocyte Count and Per Cent Neutrophils	Result
1 Aged 75	Toxic; anxious expression	105.6	126	Marked abdominal pain. Rectal tenesmus	3	Frequent mucoid; watery at first; later much blood		Died on third day
2 Aged 42	Listless. Not much complaint	105	135	Abdominal pain. Rectal tenesmus and tenderness	14	8 to 12 per day. Watery at first. Cadaveric odor. Later, much blood	7400 79	Recovered
3 Aged 65	Toxic; exhausted expression	101.8	114	Abdominal pain. Marked rectal tenesmus and tenderness	35	15 to 20 per day. Watery at first. Later, much blood and necrotic tissue present	25,800 89	Recovered
4 ¹ Aged 62	Extremely toxic	96.6	Thready. Unable to count	Marked abdominal pain. Rectal tenesmus	2	Frequent. Much blood	8700 59	Died on second day
5 Aged 38	Not abnormal	99	90	Slight diarrhea. Abdominal pain	3	Semisolid to watery. No blood		Recovered
6 Aged 67	Restless; uncomfortable	100.4	90	Epigastric pain. Tenderness of course of colon	5	Semisolid to watery. No blood		Recovered
7 Aged 63	Acutely ill	98	106	Abdominal pain and distress. Slight tenderness	3	Semisolid to watery. No blood		Recovered
8 ² Aged 70	Acutely ill	100	84	Epigastric pain. Diarrhea. Tenderness of abdomen	3	Semisolid to watery. No blood		Recovered
9 Aged 52	Acutely ill	99.4	86	Epigastric pain. Slight tenderness. Rectal tenesmus	4	Semisolid to watery. No blood		Recovered
10 Aged 59	Acutely ill	100.6	100	Epigastric pain. Diarrhea	4 days. Apparently recovered	Semisolid to watery. No blood		Died on eighth day. Myocardial failure

The autopsy findings were:

1. Acute catarrhal inflammation of the colon and ileum extending well toward the jejunum with small ulcers of the sigmoid colon. Regional mesenteric lymph nodes enlarged.

2. Died March 11, 1935. Mucosa of colon was atrophic. Colon bound down with adhesions throughout entire course.

23, was there a positive response this year and a negative test one year ago.

Shiga¹³ tested the so-called Widal's phenomenon on the sera of hundreds of dysentery patients and found that the agglutination response was paralleled in general to the severity of the disease. He reported a definite response in one

patient eight months after the disease. The patients in this series gave a definite response twelve months after the disease. He also found that agglutination appears for the first time during the second or third week of the disease, reaches its highest point during convalescence, after which it gradually decreases. In rare cases

Table 2. *Agglutination Tests on Patients and Normal Controls*

Patient	Shiga	Flexner	Normal Controls	Shiga		Flexner	
	Serum Dilution 3/25/35	Serum Dilution 3/25/35		Serum Dilution 3/11/34	Serum Dilution 3/25/35	Serum Dilution 3/11/34	Serum Dilution 3/25/35
1	Dead	Dead	11	Negative	Negative	Negative	Negative
2	1:640	1:320	12	1:50	1:40	Negative	1:20
3	1:640	1:160	13	1:100	1:80	Negative	Negative
4	Dead	Dead	14	Negative	Negative	Negative	Negative
5	1:640	1:80	15	Negative	Negative	Negative	Negative
6	1:640	1:180	16	Negative	Negative	Negative	1:40
7	1:640	1:40	17	Negative	Negative	Negative	1:20
8	Dead	Dead	18	Negative	Negative	Negative	Negative
9	1:320	1:40	19	Negative	1:40	Negative	1:20
10	Dead	Dead	20	Negative	Negative	Negative	Negative
			21	Negative	Negative	Negative	Negative
			22	1:50	1:20	Negative	Negative
			23	Negative	1:80	Negative	1:20
			24	Negative	Negative	Negative	Negative
			25	Negative	Negative	Negative	Negative

it may appear for the first time as late as the sixth week of the disease and, therefore, is of little diagnostic value. According to most observers, normal human serum may agglutinate the Shiga bacillus in a titre of 1:20, rarely 1:50, and the Flexner bacillus in a titre of 1:150 or higher. An agglutination response to the Shiga bacillus in a titre of 1:40 is usually considered a positive indication of infection.

DIAGNOSIS

Reed¹¹ states that in no disease is the laboratory diagnosis of more value than in this. In fact, many cases can only be diagnosed by laboratory means, and it is always a necessary method of establishing a diagnosis even under epidemic conditions. It is well to remember that the stools of bacillary dysentery are really an acute inflammatory exudate; thus they show the characteristic sticky gelatinous mucus, with red cells often in rouleaux, numerous pus cells and desquamated epithelial cells, few bacteria, little odor, and numerous macrophage cells which are large endothelial cells resembling amebae but with no motility. The toxic course with a sudden onset and the extreme frequency and susceptibility in children are to be noted. Fecal elements are largely or entirely absent from the stools.

The direct examination of the stool should be supplemented by culture on eosin methylene blue agar media for the dysentery bacillus group. Positive cultures are identified by agglutination and sugar fermentation tests. These procedures are to be left to the bacteriologist. It is the part of the clinician to see that certain definite requirements are met in making the culture. The plates preferably should be inoculated from a freshly passed specimen and at the latest within six and preferably two hours after its passage. The media should be kept warm until placed in the incubator.

In fresh smears it is to be noted that bacillary dysentery easily activates an infestation of *Endamoeba coli* and is often followed by the appearance of intestinal flagellates. These should not divert the attention from the main issue which is the presence of dysentery bacilli. *Endamoeba histolytica* is less common in association with dysentery bacilli, and, if very active amebae containing red blood cells are numerous the first day, there is less chance of the condition being a bacillary dysentery. Stool smears and cultures must be made at the earliest possible time. It is important to determine the strain of bacilli present in order that the prognosis may be estimated and that treatment may be more highly specific.

After direct stool examination and culture blood serum agglutination should be done in a

competent laboratory against the several Flexner, the Shiga, and sonne strains of the bacilli. After the first six days, and in chronic and convalescent cases, agglutination is of paramount value.

PROGNOSIS

Shiga¹³ found that the prognosis depends largely on the localization of the disease. It is relatively favorable when the foci are limited to the rectum or sigmoid; when it involves the transverse colon, the ascending and even the small intestine, the prognosis is very unfavorable. The higher the localization of the foci in the intestine the more unfavorable is the prognosis. Nervous symptoms and other symptoms of intoxication appear when the higher regions of the large intestine or small intestine are affected. They are unfavorable signs and such cases usually terminate fatally.

TREATMENT

Initial treatment should consist of bed rest and one dose of castor oil. Diet should be liquid or very soft, containing gruels, gelatins, beef tea, rice or barley water, arrow root or sago puddings; milk should be avoided.

Others advise withholding food for thirty-six to forty-eight hours. During this period a capsule containing castor oil gtt. X and salol gr. iii is given every three hours day and night. After this the diet is gradually restored, liquids, avoiding milk at first, gradually increasing diet until the patient is on a regular diet.

Regular inspections, at least daily, should be made of the stools as they are an important guide for treatment and prognosis.

In more severe cases and those not clearing at once with treatment noted, and where fever is much in evidence, specific polyvalent anti-serum should be given in large and repeated doses intravenously; 200 cc. of the appropriate serum may be repeated according to indications of fever, number of stools, abdominal pain and pulse. This should be associated with intravenous glucose. The action is antitoxic and therefore the effect is less curative as necrosis increases in the colon. Due precautions must be observed for serum sensitivity. Intramuscular injection is less desirable. Small children may be treated intraperitoneally or by rectum.

The well tried sodium sulphate treatment is still to be recommended in conjunction with other methods indicated. Sodium sulphate is given in 4 gm. doses in water every two hours for two days, allowing six hours at night for sleep, if possible. After this, the same dose is given every four hours until the stools become feculent. In children castor oil may be given in the same dosage and manner.

Pain is relieved by external heat, absolute bed rest, and combinations of belladonna, codeine and chloral hydrate. Bismuth subcarbonate in teaspoon doses four times daily is often of great assistance. Opium is to be avoided.

Bacteriophage is worth using, especially in Shiga strain infections. It should be autogenous if possible. Its actual value is still under debate.

Personal hygiene of nurses and attendants is extremely important. The frequent, sticky and mucoid stools easily contaminate linen and hands. It is dangerous to put the fingers to the mouth and frequent washing is necessary. Excreta and linen must be disinfected with crude cresol and phenol, or by boiling. The patient must be isolated. Quarantine ought to be maintained until three negative stool cultures are obtained over a period of three weeks.

CONCLUSIONS

1. This is a report of an outbreak of ten cases of bacillary dysentery (Shiga).
2. The outbreak was confined to one ward in the hospital.
3. A food handler was proved to be a carrier of the organism.
4. No new cases developed after relieving the carrier of his duties.

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PHYSIOLOGY AND HISTOLOGY OF THE PREGNANT CERVIX

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In the non-pregnant cervix it is necessary to dilate the cervix before one can pass a finger into the canal. In the pregnant cervix the consistency is much softer and therefore one or even two fingers may be passed into the canal without much difficulty, especially in the last months of pregnancy. This is generally thought to be brought about by marked softening and succulence of the cervix due principally to venous congestion; but the mechanism is somewhat more complicated than that.

The main function of the cervix in pregnancy is to act as a passive dilated tube for the passage of the fetus and placenta during labor. However, it serves two other functions in pregnancy: first, it tends to prevent ascending infection during pregnancy by the mucous plug obstructing the canal, second, after the third stage of labor the cervical canal closes thus hindering infection from passing upward from the vagina. Before the baby can be born normally certain histological changes take place in the cervix; these changes are especially interesting if correlated with the clinical observations of a normal pregnancy and delivery. By the minute microscopic study of the pregnant cervix it is possible to explain the physiological preparation of the cervical tissues for their ultimate dilatation during labor.

The cervix extends from the histological internal os (orificium isthmi inferius), which is the lower border of the isthmus, to the external os. This upper boundary of the cervix can be recognized easily with the naked eye in the first month of pregnancy. I shall discuss the changes occurring in the glands, connective tissue, muscles and blood vessels in that order respectively.

GLANDS

The non-pregnant cervical mucosa is made up of tall columnar epithelial cells with basal, oval nuclei, and branching racemose glands which dip down into the underlying connective tissue. The cells lining the glands are a continuation of the columnar cells which make up the cervical epithelium. The mucosa rests directly on the underlying stroma, since there is no submucosa of the cervix. The cervical canal is not entirely closed, but is filled with mucus which tends to keep the mucous membrane far enough apart so that the sperm has little difficulty in ascending. When menses occur, much of the mucous membrane is torn off and passes out with the blood

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Regeneration occurs very readily and new glands are built up.

The cervical glands begin to show marked activity during the first month of pregnancy, especially in the central part of the cervix. The canal is thrown into many regular folds which extend deeply into the underlying connective tissue. Some of the columnar cells are from 30 to 40 mu. high and some ciliated cells are scattered among them. During the second and third months the glandular activity is enormous and the cells show evidence of both hypertrophy and hyperplasia. The epithelial folds are greatly enlarged, more irregular and project deeply into the underlying loosened stroma. Many of the glands open widely into the cervical canal and there is marked evidence of direct nuclear division of the cells. The glands immediately beneath the cervical mucous membrane seem most active and are markedly dilated, often twisted and contorted, and some appear to tend to cystic dilatation. They take on strange formations, some being corkscrew-shaped, others having finger-like projections, while others show branching papillary processes that seem to push the connective tissue and muscle fibers apart. Their growth is always outward and downward. Some of the cells lining the glands at this state measure from 40 to 60 mu. in height and these appear to take the deepest stain. Others are nearly cuboidal, staining lighter and probably are exhausted cells. Large mucous cells are found which may never reach the surface of the epithelium.

In some areas where there is greatest glandular activity the epithelium is made up of several layers of indifferent cells with very dark staining nuclei. Where this multilayered epithelium is found we also see numerous sinuses between the epithelial layers; these sinuses contain many leukocytes. Sometimes a double layer of epithelium is seen, which Hofbauer has termed reduplication of the epithelium.

This glandular activity is greatest in the middle part of the cervix, next in the lower part at the junction of the squamous and the columnar epithelium and, finally, during the last months of pregnancy, the glands in the upper part of the cervix, just below the isthmus, reach the height of their activity.

At the junction of columnar and squamous epithelium numerous cysts may be found. These are lined by cuboidal epithelium and filled with a clear staining substance. Many round cells are scattered throughout the stroma.

The portio does not show such marked changes. The squamous epithelium does not appear altered and is intact in most cases. Sometimes a few glands are present under the squamous epithelium which show evidence of

increased activity but not so marked as in the cervical glands higher up in the cervix.

The junction of the cervix and isthmus is well defined. As a rule, the cervical mucous membrane overlies the isthmus glands for a short distance. The lower border of the isthmus is very narrow at the third month. By the sixth month there is considerable mucous projecting up past the internal os. In the seventh month the glands appear to be like those described in the middle part of the cervix.

During the eighth month the cervix, examined under the low power, appears to be almost one mucous mass of tissue extending to the muscle layer. Manifold new formations of the glands are seen. Some of the cells are from 60 to 80 mu. high, and it is very seldom that one sees the typical columnar cell with basal nuclei found in the non-pregnant cervix.

The mucus production, of course, depends on the glandular activity in the cervix. In the first weeks of pregnancy the glands in the middle part of the cervix have already begun to elaborate considerable quantities of mucus. By the third month the production has become enormous. I have found that with mucicarmine stain the more active epithelial cells color a deep uniform red while cells that are less active or have become exhausted stain light pink. Numerous round and plasma cells are seen embedded in the mucus in the cervical canal which they have reached by perforation through the epithelium lining the canal.

CONNECTIVE TISSUE

The stroma of the cervix consists of connective tissue and elastic tissue fibers; to these the cervix owes its elasticity. During pregnancy, the connective tissue becomes loose and spongy. By the second month the connective tissue fibers begin to take on the younger appearance which characterizes it later, but its structure at this time is easily recognizable. Up to the third month there appears to be an increase in the elastic fibers. The tunica propria of the glands have become very thin and are rich in cells, principally spindle-shaped cells with some plasma and wandering cells.

By the third month the connective tissue has undergone marked changes. This is most readily seen in the central part of the cervix because it is in that portion that the glands are then at their highest activity. Their finger-like projections push deeply into the stroma, which at this time is made up of thin, loose, web-like strands of network with clear, swollen vesicular cells. There seems to be no true edema. In some places the capillaries are scattered throughout so thickly that it is impossible to recognize the tissue. Numerous wandering cells and plasma

cells are found throughout the loosely arranged connective tissue.

From the seventh month of pregnancy onward the stroma near the internal os remains the same. The connective tissue just under the basement membrane of the cervical epithelium has nearly disappeared due to the pressure of the glands always pushing outward at the expense of the surrounding ground connective tissue. There are left only some delicate gluing fibers which separate the glands. Near the smooth muscle border some small intact areas of connective tissue may still be left.

In the portio even in the eighth month there still is left much connective tissue, although it is extremely loose, vascular and younger in appearance.

MUSCLE AND BLOOD VESSELS

The main body of the cervical wall is made up of smooth muscle and its lining connective tissue. According to Spalteholz, the smooth muscle which goes to make up the cervical wall consists of three layers; namely, (1) an outer longitudinal layer which is continuous with the muscle of the uterus and the vaginal wall; (2) a middle circular layer, and (3) an inner longitudinal layer which is relatively thin.

Besides these there are numerous smooth fibers which encircle the external os.

The middle circular layer is very vascular and contains many small veins scattered throughout the smooth muscle. These veins are especially numerous in the region of the portio and somewhat less in number near the internal os. In numerous areas connective tissue is present which holds the muscle layer together.

During the first months the muscle undergoes hypertrophy, mainly growing in length. The veins in the circular layer of muscle, which lies between both longitudinal layers, undergo extreme dilatation and growth. Many new veins spring up. These are thin walled, tense, engorged with blood and grow at the expense of the connective tissue and muscle, which become markedly separated. By the fourth month these have formed a network of large, venous blood spaces linked together loosely by connective tissue and muscle. This is especially true in the region of the portio.

Meanwhile, due to the separation of the connective tissue fibers and the intense growth and development of the veins, there has been a separation of most of the muscle fibers. They are loosely connected with one another. According to Tarlo, the muscle fibers increase in number until the third month and then decrease in the later months. As the veins enlarge and new ones form, new connective tissue and muscle are also laid down, especially in the portio. By

the seventh month the arterial vessels show a definite increase in their elastic fibers.

There is now an intense venous congestion as evidenced by the markedly dilated, numerous, tense venous spaces in the circular muscle layer. It is very difficult to recognize the muscle tissue in some places, except by cross section, and it simulates erectile tissue. It is not really an erectile tissue, but, as Stieve has said, it forms "a compressible spongy body." This plays an important part in labor, as will be discussed later.

DISCUSSION

From the histological description one can see that the pregnant cervix undergoes certain changes so that obliteration and later dilatation of the external os can occur during labor. These changes are most marked at first in the central part of the cervix where the height of glandular activity has been reached by the third month. At this time the center of the cervical canal is broader, spindle-shaped and filled with tough masses of mucus. This heightened glandular activity occurs next in the lower part of the cervix near the junction of the squamous and the columnar epithelium, and later in the upper part of the cervix. The connective tissue of the portio shows less change and occurs in the last few months of pregnancy.

The special significance of the changes in the cervical wall is that there has been a widening of the cervical canal with an increase in the thickness of the wall. There is a slight lengthening of the cervix and it presents a considerably enlarged surface. This has been obtained by the enormous growth of the mucous glands and the veins at the expense of the connective tissue and muscle. The honeycombed venous plexus, present mainly in the oblique layer of muscle, forms the spongy compressible tissue which is very succulent and in an extreme state of congestion.

During the eighth month the internal os is generally open and the external os may still be closed. Just before labor begins the internal os is wide open and filled with mucus. A cross section of the cervix at this time reveals from without inward the following layers; namely, (1) a fairly well developed but extremely loosened longitudinal layer of muscle; (2) the swollen, highly vascular spongy layer which was formerly the circular muscle layer; (3) a thinner, loose longitudinal layer, and (4) finally, a very thin paper-like layer consisting of the actively secreting glands held together by a thin network of embryonic stroma.

The cervix now represents a glandular tube lined by easily compressible muscle.

When labor begins the membranes are pushed

down past the internal os into the cervical canal resulting in the mucus plug being pushed out. With continued pains as the membranes push farther down into the cervical canal, the delicate network of glands and stroma is torn off and expelled. Only a few nests of glands are left adhering to the muscle layer. As the head fills the cervical cavity, the remaining muscle and connective tissue are compressed into a thin, flat layer which is readily compressible and allows dilatation and thinning of the cervical tissue to take place.

After the third stage of labor the cervical canal is full of blood and fibrin. Stieve was the first to explain the closing of the cervical canal in somewhat the following manner: The muscle of the uterus and isthmus contract readily but that of the cervix, due to its extreme looseness and fewer muscle fibers, does not contract. The venous sinuses in the spongy layer fill up almost immediately after labor and to a fuller extent than previously, which possibly is due to a loss of tone of the venous walls. Also, many of the loose spaces between the connective tissue and muscle, which had previously been empty, now become filled with blood. In other words, the cervical wall is much thicker now than just before labor and the inner walls come into apposition with one another. This tends to hinder ascending infection and closes off the uterus from the vagina. The few remaining glands regenerate very rapidly, even more so than those of the uterus and isthmus, and by the tenth day are completely regenerated. The cervical muscle has regained its normal tone and much of the blood, which has coagulated, is absorbed. New veins have sprung up which are much smaller. By this time the mucous membrane has begun to elaborate mucin which now takes over the function of preventing ascending infection.

In the multipara, the external lips are often patulous and gape widely from the beginning of pregnancy. I agree with Schönholz who found, in multipara, that the glands appear to grow more rapidly and that there are more glands present with less ground tissue in the region of the external os than in primipara. This brings up the question of the so-called rigid long cervix sometimes found in old primipara which gives rise to dystocia. Why should the consistency of these cervixes be harder than others, and why do they not sometimes soften with labor even though the pains may be very strong? Dilatation probably proceeds slowly due to the predominance of the ground connective tissue which has not undergone sufficient physiological preparation for labor. Perhaps this might be explained as an abnormal imbalance or insufficiency of the anterior pituitary secretion resulting in deficient activity of the

cervical glands. Perhaps there is sufficient glandular activity for a normal labor, but not enough for an excess of connective tissue that may be present in the cervix of the elderly primipara. Hofbauer has shown that the anterior pituitary stimulates the epithelial hyperplasia in the uterus and cervix during pregnancy. Correlating this with what I have found in the pregnant cervix, I make it a practice to give elderly primipara anterior pituitary medication during their antenatal period.

CONCLUSION

1. The changes in the cervical tissues during pregnancy are relatively constant.
2. These changes are necessary before normal obliteration and dilatation of the cervix can take place during labor.
3. The pregnant cervix, besides acting as a passageway for the birth of the baby, tends to hinder ascending infection during pregnancy and postpartum.
4. The long rigid cervix found in some elderly primipara giving rise to dystocia may be due to insufficient anterior pituitary secretion.

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MENSTRUAL EDEMA: REPORT OF CASE CONTROLLED BY EMMENIN BUT NOT BY THEELOL OR THEELIN

Arthur J. Atkinson and Andrew C. Ivy, Chicago (Journal A. M. A., Feb. 15, 1936), observed a patient with pronounced menstrual edema of long standing in which certain blood chemical studies have been made and the condition prevented by the administration of emmenin (Collip) but not by theelol or theelin. The study has extended over a period of more than one year. The administration of emmenin (12 c.c. daily, 60 day oral units-Collip) in the first patient resulted in a complete disappearance of the edema, including that which persisted between menstrual periods. When the emmenin was withdrawn, the edema reappeared with the next menstrual cycle. While the patient was taking emmenin there was no significant change in the basal metabolic rate (-17.5) and the menstrual headaches did not occur. A significant change in the blood lipids was not observed during the period of study. Two other patients with a similar history of premenstrual edema have been given emmenin with subsidence of the swelling.

TOXICITY OF DINITROPHENOL

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During the last two and one half years we have witnessed what may occur when a new drug with dangerous possibilities is allowed to come into general use without proper preliminary evaluation of its possible toxic effects. Deleterious results often do not sufficiently impress the medical profession until the public has been exposed to a new preparation for some years. Such has been the experience with cincophen, amidopyrine, carbon tetra-chloride and tetra-ethyl lead.

The unsavory history of dinitrophenol was certainly a poor recommendation for its introduction into therapeutics. During the World War a French commission was appointed to investigate the many cases of poisoning and numerous deaths occurring among workmen engaged in the manufacture of the explosive dinitrophenol. Dinitrophenol was particularly a French explosive. Similar reactions had occurred in the United States and England among those exposed to tinitrotoluol (the famous TNT) which is closely related chemically to dinitrophenol. Trinitrophenol (picric acid), another explosive, had been found to be relatively nontoxic, so that when the first cases of poisoning occurred with dinitrophenol they were ascribed to impurities possibly present. Further studies, however, showed that the impurities were less toxic than the dinitrophenol itself. The reports of this commission, as recorded by Magne, Mayer and Plantefol,¹ and by Perkins² make fascinating reading. After a long series of experiments between 1915 and 1918 Mayer wrote, "Dinitrophenol is a toxic product, no matter how introduced into the animal organism, whether by ingestion, intravenously, subcutaneously, intraperitoneally, or rubbed on the skin. This was true for all the animals studied, whether horse, dog, rabbit, pigeon, turtle or frog." The toxic dose was rather small, being only 0.01 gram per kilogram of animal. The experimental studies showed the chief effects to be great elevation of the metabolic rate, reduction of glycogen reserves, hyperglycemia and a rise of temperature. When the dosage was large enough, the animals died with hyperpyrexia. Pathologically, surprisingly little was found although there was some evidence of toxic liver changes.

Munitions factory workers complained of anorexia, nausea, vomiting, diarrhea and ab-

dominal pain. Frequently they suffered marked weight loss, weakness, headaches and sweats. If they were not removed from contact with the explosive, oliguria, marked thirst, fever and dyspnea developed. Removal from the work usually led to rapid recovery within a few days. If a lethal amount had already been absorbed, pallor with cyanosis of the lips, extreme hyperpyrexia and death occurred, sometimes after convulsions or prolonged coma.

In July, 1933, Cutting, Mehrrens and Tainter³ after preliminary studies upon animals, suggested the use of dinitrophenol in obesity. Daily doses of from 3 to 5 mg. per kilogram body weight were suggested as being well within the therapeutic range. Since the drug elevated the metabolism without apparent effects upon the heart and nervous system such as those occurring with thyroid extract, it seemed ideally suited for weight reduction in obese patients with cardiac disease, in preparation of the obese for surgical operations and in other conditions in which the use of diet and exercise was difficult or contraindicated. The suggestion was seized upon with enthusiasm, but it is evident that its use has not been limited to such indications and that the lazy and gluttonous have heard of it through the public prints and clutched at it as their especial windfall. It is dispersed freely over the drug counters under a host of names such as Slim, Nitromet, Dinitrolac, Nitra-Phen, Dinitroso, Formula 281, Dinitrose, Nox-Ben-ol, Re-Du, Aldinol, Dinitronal, Prescription No. 17, Dinitrole, Tabolin and Redusols. More than twenty wholesale drug firms are marketing the compound. One clinic has treated about 4500 patients in one year, supplying to them through physicians' prescriptions over 1,200,000 capsules of 0.1 gm. each.⁴

Numerous and various toxic manifestations have been reported both in this country and abroad. Gastro-intestinal reactions with vomiting and diarrhea have been common. Cutaneous disorders, with burning sensations and pruritus, maculopapular dermatitis, urticaria and angioneurotic-like swelling frequently occur. Renal damage has appeared in several cases, in one of which there was gross hematuria.⁵ In several cases there has been evidence of liver damage. I have been able to find reports of only five deaths in this country, one other having occurred in England from the use of the closely related compound, dinitrocresol. Of the six deaths, three followed known overdosage while the other three patients had received amounts within the so-called therapeutic range. Two of these deaths occurred as the result of the development of malignant neutropenia. Four other patients have developed severe neutropenia but have recovered. These toxic effects

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have been reviewed in a previous publication.⁶

More recently additional alarming reports have appeared. The early reports included several instances of prolonged loss of the sense of taste.⁷ It seems that this is a manifestation of a peripheral neuritis. Nadler⁸ reported, in July, 1935, two cases with pain and paresthesia of the legs. Cogan and Cogan⁹ reported a similar case. Epstein and Rosenblum¹⁰ observed a patient in whom abortion and peripheral neuritis apparently resulted from dinitrophenol. Eighteen of 177 cases studied by Tainter and his co-workers¹¹ suffered from peripheral neuritis, chiefly sensory in nature and manifested by pains and paresthesia. One patient, however, developed a foot drop from which he later recovered.

In July, 1935, Boardman, Horner, Jones and Boardman reported the first cases of cataract following the use of the drug. Since then there have been other reports and I have been able to find fourteen such cases recorded.¹² Partial or complete blindness is certain to result in the majority of these cases. It would seem that this last dramatic demonstration would stop the use of the drug but now, even though physicians are aware of its great dangers, the public continues to demand it in increasing quantities.

EVIDENCE AGAINST SPECIAL SENSITIVITY

There are still those who insist that unpredictable idiosyncrasies can account for the toxic responses.¹³ However, the number and variety of the untoward results would seem to indicate that even in small doses the drug acts as a poison. Matzger¹⁴ was unable to determine by patch tests, intradermal skin tests or the passive transfer reaction any correlation with subsequent skin reactions, which is evidence against specific sensitivity as an explanation of the toxic effects.

Shortly after the first report upon the clinical use of dinitrophenol appeared, we began some carefully controlled studies upon bodily functions as affected by it during weight reduction. These investigations have convinced us that in the majority of patients receiving the drug there are evidences of harmful effects even when there are no striking results such as agranulocytosis, neuritis, cataracts or death. We observed definite clinical variations in the functions of the liver, heart and muscles, and loss of dextrose tolerance even after short periods on comparatively small dosage. The dosage was 0.1 gram three times daily.

Liver Function.—Liver damage was evidenced by decreased dye excretion after intravenous phenoltetraiodophthalein injection. There were no significant variations in other liver function tests such as the corrected icterus index, the serum Van den Bergh, the urinary

urobilinogen or the galactose tolerance test. These tests, however, reveal only extensive liver damage, and the dye test is a more sensitive criterion.

Six out of eight patients showed increased dye retention after dinitrophenol medication.

Kidney Function.—No evidence of kidney damage was noted in repeated examinations of the urinary sediment, the blood nonprotein nitrogen or other kidney function tests in three patients studied in the hospital for eight weeks.

Circulatory System.—Observations of the pulse rate, the blood pressure, the respiratory rate and heart sounds showed no variations in six patients, each studied in the hospital for from six to eight weeks. In three of these patients, however, definite changes occurred in the electrocardiograms. These were of the type seen with other toxins and consisted of changes in the T waves, depression of the S-T interval and notching of the QRS complexes.

Muscular Weakness.—Of all the changes noted in patients receiving dinitrophenol the most striking, seen practically in every case, is the marked exhaustion and fatigue. Exercise tolerance tests in four patients showed loss of strength and endurance. Creatine excretion and phosphate excretion rose, but there was no increase in nitrogen output. Creatinuria is increased in a number of clinical conditions which are interesting to compare with the effects seen under dinitrophenol medication. The chief disorders in which creatine output is increased are those in which rapid muscle atrophy occurs such as fasting, fever, hyperthyroidism, muscular atrophies and dystrophies. When normal recovery of muscles after exercise is prevented, muscle glycogen and phosphocreatine decrease, muscle and blood lactates rise and there is increased elimination of dextrose, phosphate and creatine. From our studies and those of others this is what seems to occur in patients receiving this drug.

Dextrose Tolerance.—Sugar tolerance curves showed definitely higher elevation after medication in nine out of twelve cases. One patient with diabetes showed decreasing tolerance while receiving the drug. Two patients in a prediabetic state showed loss of tolerance which persisted in one of them after the drug was discontinued.

Metabolic Rates and Fuel Burned.—The metabolic rates rose in every case and remained between plus 30 and plus 70 per cent while the drug was continued. Respiratory quotients, both fasting and following a test meal, were slightly lower during medication than before, indicating that more fat is burned than normally.

Fortunately we did not see any instances of neutropenia or cataract in our series of fifteen

patients. Three, however, had severe skin rashes, five had gastro-intestinal disturbances, one experienced loss of the sense of taste, and all complained of exhausting sweats, anorexia and weakness. The weight loss, even on restricted diets, was not particularly dramatic.

Signs and Treatment of Poisoning.—Physicians should be familiar with the signs of dinitrophenol intoxication since it is becoming a popular means for suicide. These signs are, vomiting, diarrhea, fever (which may be extreme), flushed skin, sweating, restlessness and deep rapid respirations. Fortunately, I have seen no convulsions or deaths. However, I have seen one physician practicing self-medication who purposely doubled his dose and in six hours had a fever of 103° and was so unstable mentally that he had to be forcibly restrained. In cases of serious poisoning there is terrific respiratory distress, the oxygen intake becomes insufficient and as lactic acid piles up in the tissues heat rigor develops and death follows.

The treatment for cases of poisoning is as follows: There is no antidote so wash the stomach out with 5 per cent sodium hydroxide solution; give oxygen inhalations, cooling sprays or baths and supply saline solution, intravenous glucose and insulin.¹⁵

SUMMARY AND CONCLUSIONS

No known system of weight reduction has been shown to be as generally safe and effective as the limitation of the food intake and the increase of the energy output. Dinitrophenol, which was suggested as an escape from this régime, has been shown to have many obviously severe toxic effects and other latent and less noticeable deleterious results here reported may be no less important.

Many persons continue to take the drug on their own volition and a mounting number of cases of poisoning can be expected as it becomes more widely sold by druggists, beauty emporiums and the quasimedical cults. It should be considered the duty of our medical societies to see that dinitrophenol and its related compounds are included in the list of dangerous drugs so that its sale may be controlled by the Federal Food and Drug Act. The evidence against dinitrophenol would seem sufficient to exclude it from any use in therapeutics.

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VALUE OF THE LEUKOCYTE COUNT IN PULMONARY TUBERCULOSIS

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We are able to determine clinically quite early when a tissue change is produced in the normal lung by the invasion of the tubercle bacillus. However, after the individual's lung has been invaded and enough defense has been built up to arrest the progress of the disease, the period of quiescence is usually short and we are poorly equipped to determine when quiescence ceases and activity again begins. The tubercle in the beginning is microscopic in size so there is quite a period before the stethoscope or roentgen ray film shows gross destruction of pulmonary tissue. The human body is not intolerant of the tubercle bacillus and tissue destruction is sometimes extensive before the constitutional reactions of fever, indigestion, loss of weight, etc., are manifest.

Of the available laboratory aids for evaluating the activity of tuberculosis the leukocyte count has of late been restored to a position of importance and is useful in the interpretation of the existing pathology of the tuberculous lesion.

As the leukocyte picture in tuberculosis resembles that found in a number of other disease conditions associated with tissue destruction, it has no value in the diagnosis of tuberculosis;

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but once the diagnosis of tuberculosis has been clinically established it is very useful in the interpretation of the existing pathological lesion of this disease.

In 1925, Sabin and her coworkers, using supravital staining preparations, demonstrated that the immediate effect of the introduction of the tubercle bacillus into tissue was upon the monocyte cell of the blood. They traced this cell from its origin in the reticular cells of the spleen and bone marrow to its consummation in the typical epithelioid cell of the tubercle. They showed that the tubercle bacillus (aided by its lipoid fraction) lived and multiplied within the monocyte. The lymphocyte was found to be the combative cell tending to limit the development of the tubercle and to destroy the bacillus. The predominating reaction within the tissue can be measured in the peripheral blood by the numerical preponderance of either type of cell and can be expressed by the ratio of monocytes to lymphocytes as obtained from a total count and differential smear.

In 1926 and 1927, Medlar and his coworkers published their findings in regard to the role played by the monocyte, the neutrophil and the lymphocyte in the histopathological reaction in tuberculosis. In their work they corroborated the view that the monocyte plays the chief role in the formation of the primary mononuclear or epithelioid tubercle.

If the healing of the tubercle occurred early with the destruction of the tubercle bacilli, lymphocytes alone took part. If, however, the monocyte had been unsuccessful in its combat with the infection and had undergone necrosis, the neutrophilic cells were attracted in large numbers and through their proteolytic enzymes tended to liquefy the necrotic material and produce suppuration.

If the neutrophils were overcome, incomplete digestion of the necrotic tissue ensued and a typical caseation resulted. If healing took place at this state, the lymphocyte was the predominating cell although it was often aided by the monocyte.

The picture of pathological change was determined by Medlar by counting the white cells in the circulating blood. Medlar's base line was neutrophils, 5000; lymphocytes, 2000, and mononuclears, 700. Any increase in the neutrophil count above 5000 or the mononuclear count above 700 was looked upon as a swing toward the abnormal. Any lymphocyte count below 2000 indicated that there was an abnormal scarcity of these cells in blood circulation.

Adopting the interpretation of Medlar we used the following ranges of counts to describe the abnormal picture:

THE HYPERPLASTIC COUNT

The total normal or slightly increased.
The mononuclear always more than 10 per cent.
Lymphocytes more than 25 per cent.
Neutrophils 60 per cent or below.

This indicates that new tubercles are being formed but that these tubercles have not necrosed and are not being invaded by neutrophils and an abscess produced.

THE SEPTIC LEUKOCYTE COUNT

Total leukocyte count usually above normal.
Neutrophils above 70 per cent.
Lymphocytes below 25 per cent.
Mononuclears above 8 per cent.

This type indicates that the tuberculous process is undergoing abscess formation or ulceration, or that such a process is in existence and healing is not taking place.

THE COUNT OF HEALING

Total count high.
Lymphocytes above 30 per cent.
Mononuclears often above 8 per cent but may be below 7 per cent.

In our experience the monocytes as well as the lymphocytes played a role in the picture of healing. In 8 per cent of the cases undergoing arrest of their active processes the monocyte count remained high while the lymphocyte count rose.

The Count of Inactivity is a normal count.

The Count of Defeat is an increasing septic count, i. e., increasing total and neutrophil count and decreasing lymphocyte count. If the septic picture becomes exaggerated and is maintained the prognosis is very unfavorable.

There are many other disease conditions associated with tissue destruction that show pictures resembling those here described so the leukocyte picture as a means of differentiating tuberculosis from other disease conditions is of no assistance; but while watching the progress of a patient sick with tuberculosis the blood picture is a reliable interpretation of the pathological processes taking place within the patient's tissues.

Immunity to tuberculosis varies greatly in different individuals and also varies in the same individual during different periods of the disease. Because of an individual's inability to acquire a permanent immunity a relapse into activity after arrest of his disease is a common happening.

We are accustomed to look upon a return of fever or cough, an increase in the areas of rales or the roentgen ray findings of increased parenchymatous change, as evidence of a loss of immunity and the extension of the disease.

The changes in the leukocytic picture seem to anticipate these findings in the majority of our cases and to be a more delicate index of activity and inactivity than any other method. Inter-current infection upsets the blood picture of our cases surprisingly seldom.

In this paper we are attempting to show the application of these blood pictures in the follow-up observations of patients convalescing from a pulmonary tuberculous infection. The material was obtained by the observation of 108 individuals, with moderate caseous change in their lungs due to infection with the tubercle bacillus, that had been discharged from institutions or from confinement in their homes as cases in which the tuberculous process had been arrested. None of them had demonstrable cavities or gross pleural involvement.

They were observed over a period varying from eighteen months to four years, averaging two years and ten months. The age limits were from 16 years to 37 years. Forty-two per cent of them were females, yet the females, all under 25 years of age, furnished 51 per cent of the mortalities. The counts were done at least once a month, often once a week or every two weeks if the blood picture was changing, and averaged every eighteen days. The simple smear stained with Wright's stain was used. An attempt was made to obtain these smears under basal conditions so the blood was taken before the morning meal after the patient had been lying down for thirty minutes.

In our experience the commonest complication disturbing the blood count was the septic picture produced by infectious gastro-enteritis and the mononucleosis and leukopenia of influenza.

Table 1. *Summary on 108 Cases of Pulmonary Tuberculosis*

First indication of the activation of a quiescent lesion:	
By change in leukocyte count.....	82 cases
By change in auscultatory findings.....	11 cases
By change in roentgen ray findings.....	13 cases
By appearance of fever.....	0 cases
By appearance or increase of cough.....	0 cases
By appearance of hemoptysis.....	2 cases
Relapses that were uneventfully arrested.....	48 cases
(All had a change in the leukocytic picture but in only two was the septic count persistent.)	
Relapses that developed hemorrhage.....	7 cases
(All had septic count.)	
Relapses that developed cavities.....	18 cases
(All had persistent septic count.)	
Relapses that died.....	27 cases
(All had an increasingly septic count.)	
Had not become arrested when last seen.....	8 cases

The result of our observation was the determining that a change in the blood picture anticipated the change of clinical relapse weeks and occasionally months before the symptoms appeared; also, improvement was anticipated but not at such extended time limits.

In every case but two in which a septic picture

was maintained in spite of clinical improvement, relapses soon occurred and if the septic blood picture continued death ensued.

We found that females between the ages of 16 years and 25 years were the most prone to develop a septic blood picture and to maintain it and our mortality was highest in this sex and age group.

We believe that the physician should do a total and differential leukocyte count every time the tuberculous patient reports for observation in addition to the usual forms of examination.

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THE LYMANHURST INTERPRETATION OF TUBERCULOSIS

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Follow up studies conducted at Lymanhurst during the last fifteen years indicate that two immunologic states on the part of the host; namely, the normal preinfection and the abnormal postinfection condition, enable a single etiologic agent, the tubercle bacillus, to produce two distinct general types of tuberculosis in man. These two general forms of the disease, which may be designated conveniently by the terms the first infection and the reinfection types of tuberculosis, differ from one another in their respective clinical manifestations, evolution, prognosis and therapeutic requirements to degrees that are surprising when their common etiology is considered.

Tuberculosis of the first infection type may be situated in the thorax, in the abdomen, or elsewhere; thus, several subvarieties are recognized on the basis of the anatomical location of the disease. Clinically, however, the anatomical subvarieties of primary tuberculosis do not differ from one another to an appreciable degree.

Also several subvarieties of tuberculosis of the reinfection type are recognized, such as phthisis, miliary tuberculosis, tuberculous meningitis, bone and joint tuberculosis, et cetera. Despite the fact that each of these conditions is the product of a reinfection, nevertheless they tend to differ from one another in a conspicuous manner. This diversity in clinical manifestations displayed by various forms of tuberculosis of the reinfection type stands in contrast with the general uniformity of the picture presented by different varieties of primary tuberculosis.

Initial infections with tubercle bacilli result

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in the production of tubercles which vary tremendously in number and in size in different patients. Consequently many transitional grades of primary tuberculosis occur ranging from the patient with a few small lesions to the case with many large foci of disease, and at no point along these transitions is it possible to select a significant line of demarcation that separates patients with primary tuberculous infection from those with primary tuberculous disease. Until proof is presented that initial infections occur capable in some instances of inducing sensitivity to tuberculin without simultaneously producing primary tuberculous disease, attempts to make this differentiation are equivalent to unscientific guesses not based on facts. For the present, therefore, a positive reaction to tuberculin at any decade in life is to be interpreted preferably as establishing a diagnosis of tuberculosis of the first infection type without permitting this deduction to convey any implication whatsoever relative to the location, extent or stage of development of the primary disease responsible for the specific allergy present. In addition to establishing a diagnosis of tuberculosis of the first infection type, a cutaneous reaction to tuberculo-protein in an adult known recently to be non-allergic or in a young child permits the conclusion in each instance that the primary disease is of recent origin.

Tuberculosis of the first infection type passes through a series of retrogressive developmental stages which consistently make their appearance in a very orderly sequence regardless, as a rule, of the extent and location of the disease and irrespective of the age of the patient.

The initial or preallergic stage of primary tuberculosis is entirely devoid of symptoms and lasts for from three to eight weeks. Animal experiments favor the opinion that during this period bacillary metastasis takes place with great rapidity, followed shortly by a focalization of the migrating organisms at multiple points which mark the sites of the future tubercles that comprise the primary complex. Experimental evidence also indicates that the tubercles comprising the primary complex attain a rather mature stage of development during the preallergic phase of the disease. These observations suggest the probability that the complete pathologic framework of human tuberculosis of the first infection type has been laid down in permanent locations before fever and sensitiveness to tuberculin appear.

The end of the symptomless preallergic or incubation stage of primary tuberculosis is marked by the appearance of a very lasting but variable sensitivity to tuberculin and a transitory fever. As a rule, the fever acquires readily

noticeable elevations only in the more heavily infected cases.

The advent of tuberculin sensitivity coincides closely with the development of perifocal allergic reactions sufficient in some instances to render favorably situated primary lesions demonstrable by roentgen ray films. Also many of these lesions probably acquire central areas of caseation about the time allergy appears. The termination of the preallergic period of primary tuberculosis seems to be featured, therefore, by the development of tuberculin sensitivity, a transitory fever and caseous lesions which in some instances are demonstrable roentgenographically during life. In the vast majority of patients with primary tuberculosis, however, a positive tuberculin reaction constitutes the sole evidence of the presence of the disease.

The changes which take place in first infection foci of disease after allergy appears are best illustrated by serial roentgen ray studies of patients with primary tuberculous infiltrations in the lungs. The changes observed in these lesions illustrate on a large scale the evolution of all primary varieties of the disease, regardless of where the pathology is situated and irrespective of whether the lesions are large or small.

Serial roentgen ray studies disclose little or no gross alterations over a period of weeks or months in the character or extent of pulmonary infiltrations due to a first infection. In time, however, the lesions begin to undergo a progressive process of resolution which leads eventually either to their complete roentgenologic disappearance or to their reduction to relatively trivial fibrosed or calcified deposits. The end stage of the gross retrogressive evolution of primary tuberculosis involving other regions of the body is similar to that noted in the thorax, as is evidenced by the calcified lesions disclosed with appreciable frequency by roentgen ray films of the abdominal and cervical regions especially. The evolution, therefore, of this form of the disease situated in different parts of the body is a very uniform retrogressive process.

Insidious microscopic changes take place in old primary tuberculous lesions featuring ossification and revascularization of these fibrosed and calcified foci of disease. The process of revascularization reestablishes a close proximity between virulent bacilli that may be surviving in these lesions and the general circulation, and creates situations favorable for endogenous disseminations of organisms. This sequence of events, probably, is responsible for some of the cases that develop phthisis, bone and joint tuberculosis, et cetera, by metastasis of germs from old preexisting foci of disease.

The terminal or healed stage of tuberculosis

of the first infection type is marked by the death of all tubercle bacilli in primary foci of disease and the disappearance of sensitivity to tuberculin. However, since virulent bacilli persist for years in lesions of the first infection type, primary tuberculosis often does not completely heal during the ordinary span of life.

In general, tuberculosis of the first infection type is a relatively benign disease that seldom causes death. The favorable immediate prognosis characteristic of the condition is illustrated by the records of 210 proved first infections observed at Lymanhurst, of which over 62 per cent (131 cases) produced demonstrable pulmonary infiltrations. One child in this series died of tuberculous meningitis, a reinfection form of the disease, which appeared several months after the first infection was laid down. The remaining 209 cases have brought their disease under satisfactory control and have been observed over a period of sufficient length to warrant the conclusion that no deaths are to be expected in the future as the immediate result of their primary disease. In this heavily infected group, therefore, initial contaminations with tubercle bacilli were resisted successfully in over 99.5 per cent of the cases, and the one death that did occur was due to a reinfection complication; namely, tuberculous meningitis, rather than to primary tuberculosis.

According to the view entertained by the Lymanhurst staff, the development of new lesions or an extension of the disease beyond the limits occupied by the original primary pathology, postdating in either instance the antecedent presence of tuberculin sensitivity, marks the onset of tuberculosis of the reinfection type, regardless of whether the complication occurs a few weeks or many months after the first infection form of the disease was acquired. A primary tuberculous infection followed later by the development of new tuberculous lesions, is accepted, therefore, as explaining the origin of phthisis, miliary tuberculosis, tuberculosis of serous membranes and of various viscera, of bone and joint, et cetera. The destructive secondary type of pulmonary tuberculosis may result from exogenous or endogenous reinfections, whereas, the remaining reinfection forms of the disease are the product doubtless of metastatic infections derived from preexisting lesions.

The excellent studies of Rich and McCordock have shown that an escape of organisms from older foci of disease situated in the brain or adjacent structures explains the origin of tuberculous meningitis. Although there still remains the additional problem of determining whether these parent lesions are a part of the original

primary complex, nevertheless, these studies prove that an antecedent infection complicated later by a meningeal involvement is the course of events that leads to tuberculous meningitis. This condition may complicate primary tuberculosis of recent origin or of long standing.

A similar sequence of events doubtless applies also to bone and joint tuberculosis. Circumstantial evidence which supports this thesis and simultaneously proves that primary tuberculosis does not prevent bone and joint involvement is provided by roentgen ray studies which frequently reveal the coexistence of these two conditions in the same patient. Also a few cases have been observed at Lymanhurst in which the onset of the bone and joint disease postdated by months the known antecedent presence of the first infection type of tuberculosis.

In general, scant opportunity exists for tuberculosis of bones and joints, of the urogenital tract, of serous membranes or of any other part of the body not in direct communication with the exterior, to arise except by bacillary metastasis through vascular channels from a pre-existing focus. The sequence of events leading to these reinfection conditions, therefore, is a primary infection complicated later by the development of a secondary form of the disease; and the lesions which become parent to these reinfection forms of tuberculosis of endogenous origin, doubtless are component units in many instances of the primary pathology laid down by the patient's initial infection with tubercle bacilli.

Of the various reinfection forms of tuberculosis, phthisis ranks first in importance not only as a cause of illness and death but also as a serious public health menace.

Evidence interpreted as proof that phthisis is never the result of a first infection but is always the product of a reinfection has been provided by observations made at Lymanhurst. For example, of a series of 131 primary infections capable in each instance of producing demonstrable pneumonic infiltrations, not one resulted in phthisis. Instead, during a period of follow up study each of these lesions resolved, either to disappear completely or to be reduced to fibrotic or calcified deposits. During the period this resolution was taking place, however, one child developed a tuberculous meningitis. The course of the primary disease observed in these 131 cases was entirely different from that noted for a second group of 54 tuberculin sensitive patients, who developed tuberculous pulmonary infiltrations months and years after they acquired their first infection with tubercle bacilli. The new lesions known in these 54 cases to be the product of reinfections and not

of first infections tended to persist, to spread, and to excavate rather than to resolve. At the present time, about 25 per cent of this second group has died of pulmonary tuberculosis and several additional cases now have far advanced disease. These two groups of cases illustrate that pneumonic lesion producing primary and reinfections of the lungs lead diametrically opposite results. The former regularly produces the relatively benign primary form of pulmonary tuberculosis, whereas the latter consistently causes the relatively serious condition designated here by the term phthisis. Statistical analysis of these data involving the computation of chi-square shows that no chances exist for these divergent trends to be the result of accidental sampling. The conclusion is justified, therefore, that a susceptibility to phthisis resides solely in patients who have experienced an antecedent first infection with tubercle bacilli.

The effects of an initial contamination, therefore, may be looked upon as dual in character. First, it creates a new and abnormal susceptibility to phthisis, and, second, it simultaneously produces the foci of disease which become parent by bacillary metastasis to many if not practically to all cases with tuberculosis of bone and joint, of different viscera, or of serous membranes.

The interpretation of the evolution of tuberculosis in man here presented places responsibility for the development of all serious forms of the disease which occur in man upon the effects of the first infection with tubercle bacilli. In other words, primary tuberculosis is pictured as the introductory stage of all clinical varieties of the disease. This is the answer arrived at after several years of follow-up study at Lymanhurst to the question "What does a primary tuberculous infection prevent?" The acquisition of tuberculin sensitivity, therefore, seems to be a serious liability. Apparently, the protective immunity that results from an initial infection operates over too limited a range to prove of practical value to man in the face of the liabilities simultaneously introduced.

TREATMENT OF TUBERCULOSIS

No therapeutic measures have been developed to date which favorably influence the reparative changes that take place in primary tuberculous lesions in a remarkably consistent manner. The treatment of this condition is limited, therefore, to wholesome domiciliary care which provides bed rest while acute symptoms are present and stresses particularly the prevention of exposure to reinfection at all times.

A growing appreciation of the fact that patients given ordinary care practically always bring primary tuberculosis under satisfactory

control without necessity arising for searching for nonexistent specific therapeutic measures has initiated the closing of institutions intended originally for the treatment of tuberculosis of the first infection type. The treatment division at Lymanhurst has been discontinued on the advice of the staff, and the children's pavilion at the Minnesota State Sanatorium no longer admits patients with primary tuberculosis. Similar changes are also in the process of development elsewhere. At the present time, therefore, we are witnessing the incipient stage of movement which will eventually convert preventoria, summer camps, and open window schools into monuments commemorating a mistaken idea of the past. The trend in the future will doubtless be in the direction of treating primary tuberculosis in tuberculosis free homes.

The benefits derived from specific therapeutic measures are limited largely to their use in the treatment of reinfection types of tuberculosis. The measures which prove decidedly beneficial provide in general for the application of rest directly to the area of disease. Pulmonary collapse therapy has the additional value that it operates to eliminate tubercle bacilli from the sputum, whereby this procedure serves an important public health function. Also the various procedures used for putting the diseased lung at rest accomplish economies by shortening or obviating hospitalization.

The improvements made recently in therapy introduce a new element of hope for the tuberculous, which doubtless will tend to encourage increasing numbers of physicians to take a renewed interest in treating their patients. The near future, therefore, may see the family practitioners assuming a considerable share of the treatment of tuberculous patients. Efforts are now being made by sanatorium directors in some districts to train general practitioners in the technic of pneumothorax with the object of referring patients to qualified physicians for a continuance of therapy when the greater expense of hospitalization is no longer indicated. Arrangements have also been made in one state, whereby the county compensates the physician for refills on indigent patients. Plans of this character materially enlarge the scope of the program of tuberculosis control by enlisting increasing numbers of physicians in the attack against tuberculosis.

THE PREVENTION OF TUBERCULOSIS

The eradication of bovine tuberculosis and the pasteurization of dairy products have reduced the bovine menace to a point of vanishing significance. At the present time, therefore, the human source of contagion is almost exclusively responsible for the perpetuation of tuberculosis

in man. The remaining important step in the eradication of tuberculosis, therefore, involves the prevention of human contagion.

Of the various forms of tuberculosis that occur in man, only the reinfection variety involving the lungs is of serious public health moment. In other words, the consumptives with germ laden sputum rather than the patients with bone and joint, visceral or serous membrane tuberculosis, are essentially responsible for spreading the disease to their associates. Consequently, the attack against tuberculosis may be focused most profitably on the discovery of patients with pulmonary tuberculosis of the reinfection type followed by their isolation until they no longer disseminate bacilli. This procedure breaks a vicious cycle by preventing the first infections which are responsible for introducing a susceptibility to phthisis into the race.

An ideal program for the control of tuberculosis demands annual routine tuberculin testing of all patients, followed by roentgen ray studies of the positive reactors. If carried out on an extensive scale, a plan of this type should soon yield a certified community to live in and tuberculosis should cease to be a public health menace of importance.

78 South 9th Street.

TREATMENT OF ACUTE NICOTINE POISONING

The experiments of F. E. Franke and J. E. Thomas, St. Louis (Journal A. M. A., Feb. 15, 1936), show that nicotine does no evident irreparable damage to any of the structures on which it acts and that the administration of very large doses is not incompatible with reasonably prompt and apparently complete recovery when appropriate treatment is instituted in time. For these reasons, nicotine poisoning should be regarded as a temporary respiratory emergency comparable to drowning (or electrical shock) and should be treated as such. The authors attempted to determine the results that follow the application of the methods of treatment in common use in acute emergencies of the type mentioned following the administration of nicotine to fifty-two dogs in doses that ordinarily prove fatal. Seventy deaths from nicotine in rather concentrated solutions and from tobacco are found in the literature, supplemented with four fatal cases occurring in St. Louis, which had not been reported previously. The deaths from nicotine usually occurred within a few minutes after its ingestion. In only one of twenty-eight fatal cases was treatment attempted. An endeavor to administer an emetic was unsuccessful because the patient's jaws were clenched. Death did not occur so quickly in the forty-six fatal cases of tobacco poisoning. Alcohol was used in five cases, gastric lavage is three, artificial respiration in two, ammonium carbonate in two and the remaining procedures were tried once each: friction, saline hypodermoclysis, atropine, aqua ammoniac and strychnine. Artificial respiration was used in two cases, along with stimulants, whiskey and elimination. In Weake's case, arti-

ficial respiration was begun after the heart and respiration had apparently stopped, and the patient revived. The artificial respiration was continued for at least five of the next seven hours. Thirty minutes after the artificial respiration had been discontinued the patient suddenly died. The authors observed that artificial respiration was uniformly successful in the fifty-two dogs acutely poisoned with nicotine if it was started before the circulation had failed and was continued until the muscular paralysis had disappeared. Artificial respiration, intracardiac injection of epinephrine and indirect cardiac massage were used with fair success to resuscitate animals in which the circulation and respiration had failed. The circulatory failure that follows fatal doses of nicotine in dogs is not necessarily permanent but is recovered from promptly if the heart can be started and artificial respiration maintained. Prolonged artificial respiration and, when the heart has stopped, intracardiac injection of epinephrine are recommended for trial in cases of acute nicotine poisoning. Nicotine poisoning is relatively rare, but it is a potential menace in tobacco factories, especially those which manufacture nicotine products. All such places should be provided with means for the prolonged administration of artificial respiration and employ some one trained in its use. Artificial respiration should also be mentioned in the directions for the treatment of poisoning given on the labels of containers for nicotine.

THE FREI TEST FOR LYMPHOGRANULOMA INGUINALE: EXPERIENCES WITH ANTIGENS MADE FROM MOUSE BRAIN

Maurice J. Strauss and Marion E. Howard, New Haven, Conn. (Journal A. M. A., Feb. 15, 1936), state that their experiments show that, irrespective of whether the mouse had been infected with lymphogranuloma inguinale or not, an antigen made from the brain of a mouse may induce a reaction similar to the Frei reaction when injected intradermally. In this series of experiments nearly half the reactions to mouse brain antigens injected intradermally into normal subjects were of such a nature as to make them indistinguishable from what is recognized as a positive Frei test, and some of the reactions were of such size and character as to make them easily mistakable for positive Frei reactions. False reactions may result from freshly prepared mouse brain antigen but in their experience are to be watched for when using material that has been stored a month or more. The indications are also that preparations of the antigens with saline solution instead of broth does not influence the reaction. It would seem, from one experiment, that if the antigen is preserved in the dried state the appearance of the false reaction may be prevented for a period of one month, although the results of another experiment make it seem that, in some antigens at least, the change may take place even in the dried state by the end of two months. The regularity with which tested Frei antigens made from human material were negative is conclusive proof that the normal subjects did not have inguinal lymphogranuloma; and even if the total number (thirteen) of subjects was small the fact that definite reactions to antigens made from the brains of normal mice occurred in all of them, and reactions indistinguishable from positive Frei tests in many instances justifies the conclusion that sensitivity to mouse brain is common enough to lead to a large number of false positive reactions if mouse brain antigens are used for the diagnosis of inguinal lymphogranuloma.

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MARCH, 1936

EDITORIALS

THE COLUMBIA SESSION—79TH ANNUAL MEETING MISSOURI STATE MEDICAL ASSOCIATION

The Seventy-Ninth Annual Session of the Missouri State Medical Association will be held in Columbia, April 13, 14 and 15. All general sessions will be held in the ballroom on the mezzanine floor of Hotel Tiger.

The date of the 1936 Session is approximately a month earlier than usual and the Session will convene for only three days instead of the customary four days. The date was selected because of the American Medical Association Session in Kansas City May 11 to 15 and the Missouri State Medical Association Session shortened because many more members than usual will attend the American Medical Association this year and many of the Missouri members are necessarily devoting their time to preparation for the American Medical Association Session.

The scientific program, while not as lengthy as in former years, will deal with a variety of subjects. A few papers will have most value for the specialist but most of the presentations will be for the general practitioner. The program is being arranged to leave ample time for discussion of papers. The general sessions will begin in the afternoon on Monday, April 13. All of Tuesday will be devoted to scientific work and until 4 o'clock on Wednesday afternoon.

The House of Delegates will convene on Monday morning and reconvene at 4 o'clock on Monday afternoon. The final session of the House will be held at 4 o'clock on Wednesday. The Council will convene at a luncheon meeting on Monday and at 5 p. m. on Wednesday.

On Monday evening the Committee on Maternal Welfare will hold a dinner meeting and discuss individual problems that have arisen

during the year. Dr. Joseph L. Baer, Chicago, will address this meeting.

An entertainment has been planned by the Boone County Medical Society for Tuesday evening. The Secretaries' Dinner and the showing of a motion picture of the American Medical Association by Dr. Austin A. Hayden, Chicago, will precede the entertainment.

Guest speakers at the Session will be Dr. O. H. Wangensteen, Minneapolis; Dr. Joseph L. Baer, Chicago, and Dr. Austin A. Hayden, Chicago.

The General Committee on Arrangements for the Session is Dr. W. L. Allee, Eldon, Chairman; Dr. J. S. Summers, Jefferson City, and Dr. A. R. McComas, Sturgeon. The local committees follow:

Local Committee on Arrangements: Dr. Dudley A. Robnett, Columbia, Chairman; Dr. A. R. McComas, Sturgeon; Drs. M. Pinson Neal, F. G. Nifong and S. D. Smith, Columbia.

Reception: Dr. M. P. Ravenel, Columbia, Chairman; Dr. H. B. Pryor, Ashland; Drs. R. S. Battersby, S. D. Smith and C. M. Sneed, Columbia.

Finance: Dr. Maurice E. Cooper, Columbia; Chairman; Drs. W. E. Belden and Lloyd Simpson, Columbia.

Scientific Exhibits: Dr. E. D. Baskett, Columbia, Chairman; Drs. William J. Stewart and Newell R. Ziegler, Columbia.

Entertainment: Dr. Karl D. Dietrich, Columbia, Chairman; Drs. M. Pinson Neal, Milton D. Overholser and William J. Stewart, Columbia.

Hotels: Dr. Maurice E. Cooper, Columbia, Chairman; Drs. H. P. Muir, Robert Simpson and H. McClure Young, Columbia.

Publicity: Dr. Claude R. Bruner, Columbia, Chairman; Dr. Frank W. Barden, Centralia; Drs. F. E. Dexheimer and Dan G. Stine, Columbia.

Hospitals: Dr. David L. LeMone, Columbia, Chairman; Drs. W. O. Fischer and R. R. Robinson, Columbia.

Transportation: Dr. S. D. Smith, Columbia, Chairman; Drs. W. P. Dysart, E. E. Evans and A. W. Kampschmidt, Columbia.

Registration: Dr. F. G. Nifong, Columbia, Chairman; Dr. A. R. McComas, Sturgeon, and Dr. D. S. Conley, Columbia.

A preliminary announcement of the papers to be presented at the Columbia Session appears on page 115.

WHOOPIING COUGH IMMUNIZATION

During the course of the next few months the incidence of whooping cough may be expected to reach a seasonal peak. It is therefore perti-

nent that we inquire into the use of the vaccine recommended by Sauer for the last ten years. During this period the mortality rate for whooping cough in Missouri varied between 2.62 and 9.31 per 100,000 population. Because the contagious diseases are in general so poorly reported it is difficult to determine their morbidity rate. From the available figures, however, one may safely assume that there were at least five times as many cases in some of these years as in others. During 1932 there were 240 deaths from whooping cough; of these 61 per cent occurred under the age of 1 year, and an additional 21 per cent during the second year of life. In 1933, of 96 deaths, 56 per cent occurred under the age of 1 year and an additional 24 per cent during the second year. In 1934, of 256 deaths, 58 per cent occurred before the first birthday and an additional 17 per cent during the second year. In other words, during this three year period (1932-1933-1934) between 75 and 82 per cent of all deaths from whooping cough occurred before the second birthday. The Sauer vaccine should not be given earlier than the seventh month of life and does not produce immunity for four months thereafter; that is, until almost the first birthday. The vaccine, therefore, can hardly be expected to effect a material reduction in nearly three fourths of the deaths from the disease.

Examination of the figures on contributory causes of death from whooping cough supplied by the Census Bureau for 1917 shows that 55 per cent of the deaths occurred because of a complicating pneumonia or bronchitis. Text-book writers emphasize the seriousness of such complications. There is a general impression that only the malnourished child is likely to succumb. For this reason it is worth while to recall the observation of Toomey¹ that "It has been my experience as well as that of others that well-fed infants in good surroundings actually may have few or no symptoms of the disease." From the standpoint of the public health it seems to us that here is the crux of the problem. Make children well-nourished. Good nutritional status is conducive to increased resistance to all disease. Deaths from whooping cough are far more frequent in slum districts than in the better neighborhoods. The ignorance which must be overcome in order to induce parents of the slum child to permit vaccination is already great. On the other hand, most of these parents want well developed, healthy looking children. It is to be expected that the same effort expended in spreading knowledge of proper feeding would be productive of much more good than if it were used to

insure immunization against whooping cough. While we may be confident that the use of the vaccine will be attended with no immediate danger it remains to be proved that the injection of potent chemical substances such as are necessary to produce immunity to disease is without latent danger. This consideration becomes the more important when one considers the large number of inoculations which are now clinically feasible.

Because of the variation in whooping cough severity from year to year an opportunity is given the physicians of any two neighboring communities to supply valuable evidence on the subject. In one community a determined program might be carried out to insure the inoculation of every child with the Sauer vaccine as soon as it reaches the age of 7 months. In the other community the program of the well baby clinic might be expanded to the extent that a determined effort is made to insure optimal nutrition in every preschool child (42 per cent of 113 unselected St. Louis children gave a positive history of whooping cough before the fifth birthday). Over a period of years the accumulating statistics compiled by the physicians of these two communities would prove more than ordinarily instructive in determining the worth of preventive inoculation against whooping cough. At the same time data should be collected that might lead to a conclusion as to the inherent danger of several inoculations against different contagious diseases. At any cost, however, regular immunization against small-pox and diphtheria must be maintained.

At the present time the case for routine protection against whooping cough by the Sauer vaccine is unproved. The therapeutic effectiveness of the vaccines which are available for treatment once the disease has developed add another strong argument against the general employment of a preparation which at best cannot be expected even to halve the death rate from the disease. In the meantime we shall await the introduction of a vaccine which can be given to infants immediately after birth. The tremendous mortality of the first few months of life must be diminished.

AMERICAN MEDICAL ASSOCIATION KANSAS CITY SESSION

Preparations for the American Medical Association Session in Kansas City, May 11 to 15, are progressing rapidly. Practically all sessions and exhibits will be held in the new Kansas City Auditorium, one of the largest auditoriums in the United States.

The large majority of technical exhibit space

1. Toomey, J. A.: A Statistical Analysis of Whooping Cough Cases, *J. Pediat.* 5:322, 1934.

has been contracted for and applications for space for scientific exhibits have far exceeded the possibility of accommodation.

The scientific program, while not as yet complete, promises to be equal in interest and value to previous programs. Among guests who will appear on the program are Lord Horder, of England, physician to the premier and to King Edward VIII, who will discuss "Thyrotoxicosis," and Prof. Afranio do Amaral, director of the Institute of Experimental Medicine in Sao Paulo, Brazil, who will display pictures of the snake farm at Butanan, Brazil, and discuss the treatment of snake poisoning and the use of antivenins.

Indications point to a large attendance. While no registration fee is charged for the Session only fellows or invited guests are eligible to register or take part in the work of any of the sections of the Scientific Assembly of the Association. As many members in Missouri will, without doubt, wish to become fellows in order to take part in the work of the various sections of the scientific assembly being held in Missouri the following distinction between membership and fellowship as furnished by the American Medical Association is given (application forms for fellowship may be obtained from the Secretary of the Missouri State Medical Association):

Every member in good standing in the constituent state medical association where he is engaged in practice, whose name is officially reported to the Secretary of the American Medical Association for enrollment, becomes automatically a member of the American Medical Association and is not called on, as such, to pay any dues or to contribute financially to the Association.

Members of the American Medical Association who graduated from recognized medical schools are eligible to apply for fellowship.

To qualify as a fellow, a member in good standing is required to make formal application for fellowship and to subscribe for the *Journal* of the American Medical Association. Applications must be approved by the Judicial Council. Fellowship dues and subscription to the *Journal* are both included in the one annual payment of \$7.00, which is the cost of the *Journal* to subscribers who are not fellows.

None but fellows are eligible for election as officers; none but fellows may serve as members of the House of Delegates; none but fellows may register at the Annual Sessions of the Association or participate in the work of its scientific sections.

Members of state medical associations pay dues to those bodies, but they pay nothing to the American Medical Association. Fellows pay dues and subscription to the *Journal* in the sum of \$7.00 a year which has nothing to do with county or state dues.

It is hoped that many members of the Missouri State Medical Association not hitherto fellows of the American Medical Association will become fellows in time to enjoy full benefit of the 1936 Session.

SPRING MEDICO-MILITARY SYMPOSIUM

The Spring Medico-Military Symposium which has been arranged by the Kansas City Southwest Clinical Society and the Medical Department, Seventh Corps Area, United States Army, will be presented March 9 and 10 in Kansas City, Missouri, in the Assembly Hall of the new Municipal Auditorium. Admittance to the hall will be through the Thirteenth Street entrance and registration in the foyer of that entrance.

The meeting will be open to all Reserve Officers of the Seventh Corps Area, United States Army, and the Ninth District, United States Navy, as well as to all regular physicians. There will be no registration fee and no other charges except a nominal charge for the round table luncheon on Monday, March 9. All reserve officers, both medical and dental, will receive due credit for attendance on their service cards.

The program has been arranged with lectures during the mornings, clinics during the first two afternoon hours and military subjects the last afternoon hour. Scientific sessions will be held on both evenings with presentations by military men and guest speakers.

Guest speakers include Dr. Ernest Sachs, Professor of Clinical Neurological Surgery, Washington University School of Medicine, St. Louis, and Dr. Edward F. Roberts, Ph.D., former instructor of Immunology, Yale School of Medicine, now of New York City. Military presentations will be made by Col. Kent Nelson, M.C., Omaha, Nebraska, Surgeon of the Seventh Corps Area, representing the Surgeon General of the United States Army; Lieutenant Commander Lincoln Humphreys, M.C., Omaha, Nebraska, representing the Surgeon General of the United States Navy and the District Medical Officer of the Ninth Naval District; Col. R. M. Blanchard, M.C., U. S. A., Ft. Leavenworth, Kansas; Major John R. Hall, M.C., U. S. A., Omaha, Nebraska; Capt. Adolphus Staton, M.C., U. S. N., and Capt. D. M. Kuhns, M.C., U. S. A., Ft. Leavenworth, Kansas, and Commander G. A. Riker, M.C., U. S. N. of Kansas City, Missouri.

The complete program will appear in the March Monthly *Bulletin* of the Kansas City Southwest Clinical Society, a copy of which is available in the office of the society, 207 Shukert Building, Kansas City.

A round table luncheon will be held Monday, March 9, in the President Hotel followed by a short address by Lieutenant Commander Lincoln Humphreys, M.C., U. S. N., on "The Relationship of the Navy to Medicine."

ST. LOUIS CLINICS SPRING CONFERENCE, APRIL 27-MAY 2

The St. Louis Clinics will hold its 1936 Annual Spring Conference beginning April 27 and continuing throughout the entire week. This time was selected because it falls midway between the Missouri State Medical Association meeting at Columbia and the American Medical Association meeting at Kansas City. Clinical demonstrations will be given daily from 8:30 a. m. to 12 noon and from 1 p. m. to 4 p. m. On Tuesday evening the regular program of the St. Louis Medical Society will be under the direction of the Clinics.

The Medical Reserve Officers of the Seventh Corps Area, U. S. A., will again attend the conference. Demonstrations by members of the Corps will be given from 4 to 5 p. m. daily and on Monday and Wednesday evenings.

A dinner will be given on Thursday evening. All registrants are cordially invited to attend all of these functions.

The program will be strictly clinical and will be given entirely by St. Louis physicians. It will encompass a general review and a discussion of newer methods employed in the diagnosis and treatment of all branches of medicine.

Further information may be obtained by addressing the Secretary, St. Louis Clinic, 3839 Lindell Blvd., St. Louis.

DEPAUL HOSPITAL STAFF PRESENTS SOCIETY MEMBERSHIPS TO INTERNS

The staff of the DePaul Hospital, St. Louis, is to be commended on an action which is unusual in the history of organized medicine. At a December meeting of the staff a junior membership in the St. Louis Medical Society was presented to each intern connected with the DePaul Hospital.

Internship is actually a period of continued study and the majority of interns, after the financial strain of their years of preparation, are not in position to avail themselves of the opportunities offered by Society affiliation. On the other hand, an understanding of the purposes of organized medicine and the value of membership most logically should come while the future physician is still a student.

Many phases of organized medicine offer more advantage to the man young in the profession than to the physician well established in his field. This presents a problem that has not been fully met. In 1928 the State Association attempted to meet it in part at least when the By-Laws were amended to provide for a junior membership which allows the young physician

to become a member at any time during the four years immediately following his graduation in medicine at one half the regular dues of the Association. At the expiration of the four-year period he automatically becomes a regular member. Missouri is one of a very few states which has such a provision to encourage the young physician to become a member and is proud of its action.

It is a privilege to commend the staff of the DePaul Hospital for this action and it is hoped that other hospital staffs will find it feasible to give their interns similar advantage of affiliation with organized medicine.

NEWS NOTES

Dr. John McH. Dean, St. Louis, was elected president of the St. Louis Surgical Society at the annual banquet held on January 15.

The staff of Wesley Hospital, Kansas City, elected the following officers for 1936: President, Dr. Ralph R. Coffey; vice president, Dr. O. H. McCandless; secretary, Dr. A. Graham Asher.

Dr. Fred. A. Jostes, St. Louis, was elected president of the St. Louis Clinics for 1936. Other officers are: Vice president, Dr. Joseph C. Peden; secretary, Dr. Daniel L. Sexton; treasurer, Dr. Clinton W. Lane.

G. D. Searle & Co., Chicago, has announced the appointment of Dr. Albert L. Raymond, Ph.D., as director of their research laboratories. Dr. Raymond has been connected with the Rockefeller Institute of Medical Research for the last nine years.

The National Tuberculosis Association will sponsor a two-week intensive training course for tuberculosis workers at Indianapolis, April 30 to May 9. Philip P. Jacobs, Ph.D., director of publications and extension of the organization, will be the conductor.

The Missouri State Building Commission has approved plans for constructing power plants at five penal and eleemosynary institutions at an aggregate cost of \$1,350,100. The plants will be erected at the State Penitentiary, Jefferson City; the State Sanatorium, Mount Vernon; State Hospital No. 4, Farmington; Missouri State School, Marshall, and State Hospital No. 3, Nevada.

The following officers of the staff of the St. Joseph Hospital, Kansas City, were elected at an annual dinner January 13: President, Dr. J. Park Neal; chief-of-staff, Dr. Buford G. Hamilton; vice president, Dr. Clarence A. McGuire; secretary, Dr. G. A. Roy, and treasurer, Dr. Clarence S. Capell.

Friends of Dr. E. H. Liston, Nevada, will regret to know that he had the misfortune of fracturing his hip in a fall at the home of his nephew in Fort Scott, Kansas. Dr. Liston has been a practitioner in Nevada for many years and was president of the Vernon-Cedar County Medical Society in 1931 and secretary in 1934.

The Root-Mandabach Advertising Agency, Chicago, who handles the accounts of several companies whose products are advertised in *THE JOURNAL*, have announced their removal to larger quarters. They will remain in the same building but the new address is 330 Civic Opera Building, 20 North Wacker Drive, Chicago.

A postgraduate course in "Neuropsychiatry in General Practice" will be held at the Menninger Clinic, Topeka, Kansas, April 20 to 25. The course will repeat the one given last year, with revisions. Lectures, case studies and seminars will be directed toward the application of modern neuropsychiatric principles to cases which the general practitioner frequently sees in this field.

The Sixth International Congress on Physical Medicine will be held at London May 12 to 16. It will consist of sections on kinesitherapy, physical education, hydrotherapy and climatotherapy, electrotherapy, actinotherapy, radiotherapy and radium therapy. American participants will sail from New York on May 2 on the "Britannic" and return May 31 on the "Transylvania." Dr. Richard Kovacs, 1100 Park Avenue, New York, is executive of the American committee.

The American College of Surgeons will hold its sectional meeting for the states of Missouri, Virginia, Tennessee, Illinois, Indiana, Ohio, West Virginia and Kentucky, in Louisville, Kentucky, on March 19, 20 and 21. Clinics will be held at the Louisville hospitals and scientific sessions conducted at the Brown Hotel, headquarters for the meeting. The banquet will be

on Thursday evening and a public session given at the Municipal Auditorium on Friday evening. The profession of Louisville and Kentucky have extended a cordial invitation to the physicians of Missouri to be present and help make the session a success.

The twentieth annual session of the American College of Physicians will be held in Detroit with headquarters at the Book-Cadillac Hotel, March 2 to 6. Dr. James A. Miller, New York, is president of the College. Dr. Walter B. Cannon, professor of physiology at Harvard University Medical School, will deliver the annual convocation oration on "The Role of Emotion in Disease." About fifty physicians will present papers at the scientific sessions and clinics and demonstrations will be conducted at the Harper, Receiving, Ford, Grace, Herman Kiefer and Children's hospitals of Detroit.

The St. Louis Medical Society adopted the following resolution at a meeting January 28:

WHEREAS, There are only twenty-five Marine hospitals in the United States since the policy is to build Marine hospitals where it is less economical to provide hospital care by contract with private hospitals; and

WHEREAS, The private hospitals in St. Louis could provide for care of patients receiving treatment by the United States Public Health Service in this community at less cost than in a government hospital; therefore be it

Resolved, That the St. Louis Medical Society go on record as opposed to the expenditure of funds for the entire rebuilding of the Marine Hospital; and be it further

Resolved, That the St. Louis Medical Society recommend the abolishment of the Marine Hospital in this community; and be it further

Resolved, That copies of these resolutions be mailed to the local representatives and senators in Congress.

The Mu Chapter of the Phi Beta Pi medical fraternity of Washington University School of Medicine has announced the establishing of a lectureship to be known as the Leo Loeb Lectureship. Distinguished medical scientists will be invited each year to address the students and faculty of Washington University School of Medicine and the medical profession will be invited to attend. In establishing this lectureship the fraternity chapter expresses its appreciation of Dr. Loeb's instruction and recognition of his important contributions to medical science. Dr. Loeb is best known for his work in cancer research and research in the interrelation of the endocrine glands. This is his twenty-first year with the Washington University School of Medicine.

Books for Leisure Moments

THE NEXT HUNDRED YEARS. The Unfinished Business of Science. By C. C. Furnas, Associate Professor of Chemical Engineering, Yale University. 386 Fourth Avenue, New York: Reynal & Hitchcock. Price \$3.00.

If you think science has reached its goal you will want to read Furnas' "The Next Hundred Years" (Reynal and Hitchcock, New York. A Williams & Wilkins book). He delights in pointing out the innumerable strides which must be made before the ultimate objective of science has been reached. It is delightful to find an engineer who realizes the social implications of the changing mechanical order. It will be helpful to consider his views of the place of man in a more perfect universe. According to Professor Furnas, man will need to work one fourth, amuse himself three fourths of the time. The professor is somewhat concerned over man's ability to utilize that portion of the day not devoted to gainful employment. He would have educational institutions devote some effort to inculcating in the student a desire and ability for wise enjoyment of leisure. Not that he objects to fishing or cards or some yet uninvented game; but he thinks that something more substantial will be required. If you won't have time to read the whole 400 pages in this do read at least the 65 pages entitled "Social Consequences." Long before the ultimate goal of modern science is achieved the sound thinking which the author accords current problems in this section of the book can be incorporated into our lives.

As physicians we may be more deeply interested in the discussion of biology with which the volume opens than with . . . engineering. But as the story unfolds itself we realize quite clearly the intimate connection that exists between our efforts to improve the state of mankind and the multiple duties of the engineer who must make practical application of our discoveries. The engineer must execute the demands which we make for swamp drainage, sanitation, food preservation, smoke elimination and the like. Even the chemist must look to the engineer for the practical realization of his discoveries. Without skilled engineers insulin and liver extract could never have been made commercially available. There is no phase in the advance of medicine which is not finely interwoven with the efforts of workers in a myriad of seemingly unrelated fields. As we consider the writer's grasp of this whole complicated scientific, economic and sociologic mess which constitutes modern living we are forced to the necessity of according careful study to his recommendation for the reorganization of medical practice.

There is in this book much that has nothing to do with medicine. Its perusal will destroy any smug complacency with which we have allowed ourselves to view the contemporary scene. It serves as a challenge to the inventive genius of mankind and as a demand for research to diminish that terrible waste which characterizes our living. For example, the over all efficiency of the ordinary electric light bulb is 0.012 per cent despite all the technical advances which have been made. The efficiency of the lighting apparatus of the firefly is about 96 per cent. "In other words, the beaming rump of the lightning bug is just 8000 times better than the head of man in the matter of light production." Yet, no one has learned the secret of this practically perfect illuminating mechanism. In every field of endeavor Furnas finds similar inefficiency. He wants more efficiency, less waste, better utilization of the raw

materials and better raw materials through chemical advance. Whether this new world which he visualizes will lend itself to new destructive conquests through the increased power of its utensils of living is a question which even the author does not attempt to answer. That it may lead to more terrible wars may be inferred from the fact that until Nobel (peace-prize donor) invented dynamite war was, relatively, child's play. After this invention which has served many purposes in our advancing civilization as well as for the manufacture of high explosive shells, war became Hell of an order never dreamed of by General Sherman.

OBITUARY

GEORGE WILLIAM BELSHE, M.D.

Dr. George W. Belshe, Trenton, a graduate of the University Medical College, Kansas City, 1904, died in an automobile accident December 17, 1935, aged 55 years. Dr. Belshe's car left the highway, crashed and burned. No assistance arrived in time to aid him.

Dr. Belshe was a native of Grundy County. He was born a few miles from Trenton and obtained his preliminary education in that community. He taught school one term before beginning his study of medicine.

He located at Brimson where he practiced until 1910 when he moved to Trenton. He continued his practice there until the time of his death, being on the way from a call when the accident happened.

Dr. Belshe served in France during the World War as a captain and later as a major in the medical corps. Prior to going to France he was in service on the Mexican Border.

He was a member of the Masonic Lodge in Trenton and of the Shrine in Kansas City. He was a member of the Knights of Pythias, the Major Dale Stepp Post of the American Legion and the Joseph L. Norton Post, Veterans of Foreign Wars.

He served the Grundy-Daviess County Medical Society in the capacities of delegate, vice president and president.

He is survived by his widow, Mrs. Della Crawford Belshe.

RICHARD G. CALLIHAN, M.D.

Dr. Richard G. Callihan, Luray, a graduate of the Keokuk (Iowa), Medical College, 1891, died at the home of his son in Luray, November 28, 1935, aged 66 years.

Dr. Callihan was born near Kahoka, Clark County, and received his preliminary education in the schools in that community. After graduating from the Keokuk Medical College he began practice in Luray and continued in active practice until a few days before his death.

He was a loyal member of organized medicine. He was for many years and was at the time of his death president of the Clark County Medical Society. He was well esteemed by the people of his community whom he faithfully served for many years.

Dr. Callihan is survived by his widow, Mrs. Nettie Roland Callahan, two sons, two grandchildren and one brother.

WILLIAM J. GUNDELACH, M.D.

Dr. William Justus Gundelach, St. Louis, was born in St. Louis in 1868. He received his academic education in the public schools of that city and his medical diploma from the Washington University School of

Medicine in 1890. The following year he attended the University of Pennsylvania Medical School from which he received a second degree in 1891. Immediately following this he returned to his native city to begin the practice of his profession.

Dr. William Gundelach was the elder of two sons, both physicians, of Dr. Charles H. Gundelach who for many years was on the staff of the old St. Louis Children's Hospital, and his paternal grandfather was a prominent physician in Germany in the early part of the 19th century.

Dr. Gundelach belonged to the fast disappearing type of sympathetic family physicians. His patients were his friends, his time was their time and no time was too long to thoroughly, conscientiously and methodically investigate their ailments.

No greater testimony of his professional worth can be mentioned than the fact that many of the families he treated had been patients of his father and he in turn carried them through even until the third generation and they remained his loyal friends and patients until the end.

Dr. Gundelach belonged to the St. Louis Medical Society, the Missouri State Medical Association and the American Medical Association.

He was charitable and was the attending physician to the Girls' Industrial Home from the beginning of his professional career until its close. No day was too busy or night too stormy to keep him from his charges.

His patients were his hobby and seldom did he take long vacations except the few summers he sojourned in Germany, the land of his forebears.

Dr. Gundelach suffered for many years with a heart affection but elected to carry on when his strength permitted. He died suddenly when returning home from attending the funeral services of a colleague on September 27, 1935, aged 68.

I am sure that the knowledge that he was the esteemed and beloved physician to so many will help Mrs. Gundelach and Dorothy, his daughter, and his brother, Dr. Charles Armin Gundelach, to bear the burden of their loss.—W. E. J. in the *Weekly Bulletin* of the St. Louis Medical Society.

PERCY JOSEPH FARMER, M.D.

Dr. Percy Joseph Farmer, St. Louis, a graduate of Washington University School of Medicine, 1899, died suddenly of heart disease at his home, January 23, aged 52 years.

Dr. Farmer specialized in neurology and had practiced in St. Louis for over twenty-five years.

After graduating from the medical school Dr. Farmer was appointed an intern at the St. Louis City Hospital but his health forced him to leave and he went to Romero, New Mexico. While convalescing he became medical superintendent of a resort in Romero and remained there until 1908 when he returned to St. Louis. He was on the neurological staffs of the Missouri Baptist, DePaul and City hospitals.

He became allied with organized medicine immediately upon his return to St. Louis.

Surviving are his widow, Mrs. Viola Scruggs Farmer, one son, one daughter, three sisters and a brother.

AUGUST DUTZI, M.D.

Dr. August Dutzi, St. Louis, died January 23, aged 67 years. He was born in St. Louis, at Second and Spruce streets, attended the public schools and was

graduated from the Medical Department of St. Louis University in 1905.

After graduation he opened an office at Broadway and Soulard streets and, in 1908, he spent several months in Europe. Returning to St. Louis he resumed general practice, but after a few years he took up the study of diseases of the ear, nose and throat under the tutelage of Dr. Greenfeld Sluder. He was associated for a number of years with Dr. F. G. A. Bardenheier. At the time of his death he occupied an office in the Frisco Building.

Dr. Dutzi's patients were his friends. He took a sincere interest in their welfare and his departure was sincerely mourned by all who knew him.

Dr. Dutzi is survived by his widow, Mrs. Ann Dutzi, and a sister, Miss Lena Dutzi.—G. B. G., in the *Weekly Bulletin* of the St. Louis Medical Society.

ROLE OF ANOMALIES OF KIDNEY AND URETER IN CAUSATION OF SURGICAL CONDITIONS

Robert Gutierrez, New York (*Journal A. M. A.*, Jan. 18, 1936), believes that it can be said that fully 40 per cent of all pathologic conditions of the kidneys and ureters are due to congenital anomalies, and that these malformations constitute the most extensive chapter in modern urology. Not every such anomaly constitutes a pathologic lesion with clinical symptoms, but it has been demonstrated that any congenital abnormality is potentially a clinicopathologic entity and liable to become a surgical condition. In many cases of chronic pyuria and recurrent attacks of pyelitis or nephritis in children, the underlying cause has been found to be a congenital malformation of the urinary tract. Deficient function, nephritis and pyelonephritis, as well as hydronephrosis and calculus, are of common occurrence in kidneys that are congenitally abnormal; and in cases in which only one kidney shows an abnormality, the opposite kidney, though normally developed, may suffer from the additional functional strain imposed on it. Fused kidneys of various types, and especially horseshoe kidney, are usually associated with some degree of ectopia, and with abnormalities in the pelvis and the form or number of the ureters. They are, therefore, frequently the site of pathologic lesions. Abnormalities of the pelvis and ureter favor obstruction with the development of hydronephrosis, often with superimposed infection, forming pyonephrosis. One of the most frequent causes of hydronephrosis is an anomaly of the ureter or its orifices, or displacement or angulation of the ureter caused by aberrant renal blood vessels. When the malformation is in the lower portion of the ureter, it results in hydro-ureter as well as hydronephrosis, and, when there is infection, in pyohydro-ureteronephrosis. These various pathologic lesions in abnormal kidneys may cause a wide variety of urologic symptoms that direct attention to the urinary tract and bring the patient to the urologist. The author has worked out an anatomic and clinicopathologic classification which outlines briefly the various types of congenital abnormalities of the kidney, its excretory apparatus (calices, pelvis and ureter) and its blood and lymphatic supply. This classification is given in table form. The conclusions that he draws from this presentation and emphasizes are the importance of complete urologic and urographic examination in every case in which there are obscure abdominal symptoms and minor urinary symptoms, and the excellent results that can be obtained by proper surgical methods when a correct diagnosis is established.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1936

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 19, 1935.

Montgomery County Medical Society, January 7, 1936.

Ste. Genevieve County Medical Society, January 8, 1936.

Camden County Medical Society, January 9, 1936.

Dent County Medical Society, January 13, 1936.

Perry County Medical Society, January 17, 1936.

Webster County Medical Society, February 4, 1936.

MISSOURI STATE MEDICAL ASSOCIATION—79TH ANNUAL MEETING

Columbia, April 13, 14, 15, 1936

PRELIMINARY PROGRAM

Arbuckle, M. P., St. Louis: Cancer of the Larynx.
Baer, Joseph L., Chicago: Operative Obstetrics; and Critique of Submitted Maternal Death Reports, before the Committee on Maternal Welfare.

Barr, D. P., St. Louis: Title to come.

Bartlett, Willard, Jr., St. Louis: A Ten Year Mortality Study in Toxic Goiter.

Bell, C. E. (by invitation); Lockwood, Ira H., and Narr, F. C., Kansas City: Tumors of Superior Mediastinum: Clinical Aspects; Roentgenological Aspects; Pathological Aspects.

Black, W. Byron, Kansas City: Rational Treatment of Chronic Sinus Diseases.

Boughnou, H. P., Kansas City: Pernicious Anemia.

Crossen, R. J., St. Louis: Endocrine Treatment in Gynecology.

Dorsett, E. Lee, St. Louis: Prolapse of the Uterus: Operative Treatment With Special Reference to the Manchester Operation.

Ferris, Carl R., Kansas City: Modern Trend of the Treatment of Staphylococcus Infection.

Fischel, Ellis, St. Louis: Cancer of the Rectum.

Green, John R., Independence: The Etiology of Mesenteric Thrombosis.

Hayden, Austin A., Chicago: American Medical Association (Motion Picture).

Heller, E. P., Kansas City: Management of Injuries to the Spine and Pelvis.

Helwig, Ferdinand C., Kansas City: Title to come.

Hershey, J. H., St. Louis: A New Method of Nerve Stimulation.

James, Wm. M., St. Louis: Diagnosis and Treatment of Ocular Complications of Syphilis.

Kinney, W. M., Joplin: Pathology of Silicosis and Silicotuberculosis.

Kulowski, Jacob, St. Joseph: Complications of Pyogenic Osteomyelitis and Their Treatment.

Larimore, J. W., St. Louis: The Ileocecal Segment.

Leighton, Wm. E., St. Louis: Trauma as an Etiologic Factor in Carcinoma.

Lewis, Bransford, St. Louis: The Loose Kidney Problem and the General Profession.

Lowe, H. A., Springfield: Pneumococcic Peritonitis.

Luton, L. S., St. Louis: The Clinical Use of Digitalis: Its Variables.

Miller, E. Lee, Kansas City: President's Address.

Neal, M. Pinson, Columbia: Cancer Viewed as a Preventable Disease.

Ogilvie, John H., Kansas City: Methods in Examination of Low Back Pain.

Probstein, J. G., St. Louis: Serious Complications and Sequelae Resulting From the Injection Therapy of Varicose Veins.

Rassieur, Louis, St. Louis: Common Duct Gall Stones.

Roberts, Sam E., Kansas City: Impaired Hearing: Classification and Management.

Schlueter, Robert E., St. Louis: Diagnosis and Treatment of Carcinoma of the Breast.

Sexton, E. E., St. Louis: Problems of the Female Urethra.

Smith, C. Souter, Springfield: The Management of Squint.

Spector, H. I., St. Louis: When Should Therapeutic Pneumothorax for Tuberculosis Be Instituted and When Should It Be Discontinued?

Wangensteen, O. H., Minneapolis: The Significance of Anatomical Features of the Vermiform Appendix in the Genesis of Acute Appendicitis; and The Acute Abdomen.

Woolsey, Ross A., St. Louis: Address of President-Elect.

BOONE COUNTY MEDICAL SOCIETY

The Boone County Medical Society held its annual dinner meeting and election of officers December 3, 1935, in the Harris Cafe in Columbia. After dinner the president, Dr. W. P. Dysart, Columbia, called the meeting to order.

The board of censors reported favorably on the application of Dr. David V. LeMone. The board's report was accepted.

The secretary read a note from Mrs. R. R. Robinson thanking the Society for the gifts sent to Dr. Robinson who is confined in the Woodmen's Sanatorium, Colorado Springs, Colorado.

Dr. H. McClure Young, Columbia, presented an interesting paper on "A Case of Tuberculosis of the Kidney," supplemented by lantern slides. His paper was meritorious and well received.

The following officers were elected: President, Dr. S. D. Smith, Columbia; vice president, Dr. R. S. Battersby, Columbia; secretary, Dr. M. E. Cooper, Columbia (reelected); member auxiliary committee on public policy, Dr. D. A. Robnett, Columbia (reelected); member board of censors, Dr. A. R. McComas, Surgeon (reelected).

Meeting of January 7

The Society met January 7 in McAlester Hall, Columbia. An excellent representation of members was present and a large number of physicians from the six counties adjacent to Boone County as well as the majority of dentists of Columbia, making the attendance fifty-four.

The meeting was called to order by the president, Dr. S. D. Smith, Columbia.

The following committees were appointed; Program, Drs. R. H. Simpson and Wm. J. Stewart, Columbia, and F. W. Barden, Centralia; lay projects, Drs. F. E. Dexheimer, K. D. Dietrich and C. R. Bruner, Columbia; public health and legislation, Drs. N. R. Zeigler and D. A. Robnett, Columbia, and A. R. McComas, Sturgeon.

A letter from Dr. R. R. Robinson from the Woodmen's Sanatorium, Colorado Springs, Colorado, to the Society was read. Dr. McComas moved that the secretary be instructed to answer the letter expressing the best wishes of the Society. The motion carried.

Dr. S. D. Smith gave a brief outline of his policy for the year urging the support of all members in helping to make the year one of increased prosperity for the Boone County Medical Society and emphasizing the all important principle back of the benefits to be obtained from any fraternal organization, that one will get out of it only in proportion to the energy he puts into it.

Dr. M. P. Ravenel, Columbia, spoke on "The Public Health Aspects of the National Social Security Act."

Dr. Ralph R. Wilson, Kansas City, spoke as Chairman of the Committee on Maternal Welfare of the Missouri State Medical Association.

Dr. Carl F. Vohs, St. Louis, outlined the St. Louis plan for providing budget systems for deserving patients to enable them to care for their medical financial obligations.

The addresses were liberally discussed and it was felt that the program was extremely timely and valuable.

M. E. COOPER, M.D., Secretary.

CASS COUNTY MEDICAL SOCIETY

The Cass County Medical Society met in regular quarterly session at the office of Dr. M. P. Overholser, Harrisonville, at 7:30 p. m., December 12, Dr. Wm. Beckman, Strasburg, presiding.

The president read a communication from Mrs. T. W. Adair, Archie, president of the Woman's Auxiliary, asking the Society to contribute toward the expenses of the meeting when Dr. G. H. Hoxie, Kansas City, addressed the public at Harrisonville on December 19. The request was granted.

The following officers were elected: President, Dr. B. B. Tout, Archie; vice president, Dr. F. B. Ellis, Garden City; secretary-treasurer, Dr. J. S. Triplett, Harrisonville (reelected); censor, Dr. Wm. Beckman, Strasburg (reelected).

Dr. Wm. Beckman, Strasburg, spoke on "The Progress in Medicine During the Last Twenty-Five Years."

Dr. B. O. Hartwell, Drexel, spoke on "Hydatidiform Mole; Presentation of Specimen."

Dr. M. P. Overholser, Harrisonville, was the first of several to speak on "Honoring Dr. T. W. Adair in His Fiftieth Year in the Practice of Medicine." These excellent contributions were fully discussed.

After the conclusion of the program light refreshments were served at the Griffin Grill.

Members present were Drs. T. W. Adair, Archie; Wm. Beckman, Strasburg; B. O. Hartwell, Drexel; L. V. Murray, Pleasant Hill; M. P. Overholser, Harrisonville; B. B. Tout, Archie, and J. S. Triplett, Harrisonville. Visitors were Drs. J. T. Anderson, O. B. Hall, W. E. Johnson and L. J. Schofield, Warrensburg.

J. S. TRIPLETT, M.D., Secretary.

COLE COUNTY MEDICAL SOCIETY

The Cole County Medical Society has had a successful year under the presidency of Dr. Frank J. Nichols, Centertown.

The Cabot Study Club had its weekly meetings as usual on Tuesday noon at which systematic study was carried out. The club was founded by the late Dr. W. A. Clark and as a memorial the name was recently changed to the Dr. W. A. Clark Study Club.

The annual fall clinic, October 24, was a success with the following program: A medical and surgical clinic in the forenoon with demonstration of cases by the members of the staff; address on "The Early Treatment of Fractures," by Dr. M. L. Klinefelter, St. Louis; dinner served by the hospital at 6:30 p. m.; address on "Head Injuries: Their Diagnosis and Treatment," Dr. Ernest Sachs, St. Louis.

The lectures by Drs. Klinefelter and Sachs were excellent and the large audience was loud in its praise of the meeting. The dinner was excellent with Dr. James Stewart, Jefferson City, acting as toastmaster. A resolution was adopted thanking all who planned the meeting and especially the Sisters of St. Mary's Hospital.

On December 17 the following officers were elected: President, Dr. James Stewart, Jefferson City; vice president, Dr. John W. McHaney, Jefferson City; secretary-treasurer, Dr. James A. Hill, Jefferson City; delegate (2 years), Dr. James Stewart, Jefferson City, and member of board of censors (3 years), Dr. Hugh Maxey, Jefferson City.

In addition to the Society's work the St. Mary's Hospital staff meets with excellent programs every second Wednesday evening of the month.

JAMES A. HILL, M.D., Secretary.

DUNKLIN COUNTY MEDICAL SOCIETY

The Dunklin County Medical Society met at Kennett, December 16.

The following officers were elected: President, Dr. J. H. Keim, Kennett; vice president, Dr. W. D. English, Cardwell; secretary-treasurer, Dr. T. J. Rigdon, Kennett; censor (1 year), Dr. E. G. Cope, Hornersville; censor (2 years), Dr. J. D. Van Cleve, Malden; censor (3 years), Dr. E. L. Spence, Kennett, and delegate, Dr. E. L. Spence, Kennett.

Dr. Conley H. Sanford, Memphis, Tennessee, delivered an address on "Pneumonia."

An oyster dinner was served at the Palace Cafe.

T. J. RIGDON, M.D., Secretary.

GREENE COUNTY MEDICAL SOCIETY

The Greene County Medical Society met in the Springfield Public Library, November 29, Dr. Wallis Smith, Springfield, presiding.

The following members were present: Drs. G. D. Callaway, Wm. C. Cheek, Wm. A. Delzell, C. E. Feller, A. W. Gifford, G. W. Hogeboom, O. C. Horst, F. T. H'Doubler, Wm. Kelly, J. W. Love, W. P. Patterson, G. M. Powell, L. M. Rigney, Wallis Smith, D. H. Silsby, John W. Williams and D. L. Yancey, Springfield. The following members of Lawrence-Stone County Medical Society were visitors: Drs. Robert Cowan, Aurora; Don Silsby, Mount Vernon; H. L. Kerr, Crane, and Mason Lyons, Pierce City.

Drs. James Norton and Ned White, who had previously been approved by the board of censors, were elected to membership.

Dr. Frank D. Dickson, Kansas City, presented an interesting and well prepared paper on "Intracapsular Fracture of the Neck of the Femur," supplemented by

a series of lantern slides. The discussion was opened by Dr. D. L. Yancey.

Meeting of December 27

The Greene County Medical Society met December 27 in the Springfield Public Library.

A general discussion was held on "Medical Economics."

The following officers were elected: President, Dr. R. F. Williams, Springfield; vice president, Dr. W. S. Sewell, Springfield; secretary, Dr. H. L. Hoover, Springfield; treasurer, Dr. J. F. Leslie, Springfield; delegate, Dr. J. W. Love, Springfield; alternate, Dr. J. N. Wakeman, Springfield, and censor, Dr. T. E. Ferrell, Springfield.

J. NEWTON WAKEMAN, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met at the Connor Hotel at 6:30 p. m. January 7, for a dinner meeting. There were seventy-two members and visitors present.

After the dinner officers for 1936 were installed.

Entertainment in the form of a floor show was presented by Dr. W. S. Loveland.

Meeting of January 14

The Society was called to order at 8:00 p. m. by the president, Dr. O. T. Blanke, Joplin.

A report of attendance during 1935 showed an average of seventeen and three fifths for twenty-eight meetings. Dr. L. C. Chenoweth, Joplin, stated that under the present routine of weekly meetings attendance was much better than formerly.

Dr. L. B. Clinton, Carthage, suggested that the Society hold one or two meetings in Carthage in the spring.

Dr. Jesse Douglass, Webb City, invited the Society to meet at the Tuberculosis Hospital.

Dr. W. S. Loveland, Joplin, suggested that occasional dinner meetings be held. Dr. W. M. Kinney, Joplin, proposed that one meeting every four to six weeks be devoted to pathology and that members attempt to secure more autopsies of interesting cases.

Dr. L. B. Clinton, Carthage, reported that the prosecuting attorney had issued a warrant for the arrest of Dr. Stark, Jasper, but that Stark had disappeared.

Dr. B. E. DeTar, Joplin, reported a case of a boy injured in a taxi accident with compound comminuted fracture of the tibia and fibula and humerus on the right side. These were plated and good results obtained. He removed the plate from the humerus and the boy fell and refractured at the original site of injury.

Dr. L. B. Clinton, Carthage, reported a case of a young woman who, at the age of 5, received multiple fractures of both arms and legs and crushing fracture of the pelvis. Upon finding a mass in her pelvis she was operated on and it was found that the whole uterine pedicle had been twisted upon itself and the right broad ligament was growing directly into the surface of the sacral promontory.

Dr. W. M. Kinney, Joplin, reported a case of coronary artery disease. This was discussed by Dr. Howard Marchbanks, Pittsburg, Kansas, after which Dr. Marchbanks presented a case.

J. W. HARDY, M.D., Secretary.

LAFAYETTE COUNTY MEDICAL SOCIETY

The Lafayette County Medical Society elected officers at a meeting on December 18 as follows: President, Dr. Francis W. Mann, Wellington; president-

elect, Dr. W. E. Koppenbrink, Higginsville; secretary-treasurer, Dr. E. L. Johnston, Concordia.

It was stated in the February issue of THE JOURNAL that Dr. Johnston had served as secretary-treasurer for ten years. This was an error. Dr. Johnston does hold the attendance record not having missed a meeting in six years but it is Dr. Koppenbrink who has served as secretary-treasurer for ten years.

PEMISCOT COUNTY MEDICAL SOCIETY

The Pemiscot County Medical Society met in the McDonald Eat Shop, Caruthersville, January 17, at 7 p. m. with the following members present: Drs. J. B. Luten, T. J. Collins, A. R. Conrad, C. W. Brown, Caruthersville; W. F. Pitt and W. R. Limbaugh, Hayti; L. E. Cooper, Cooter. Dr. A. J. Speer, Deering, was a visitor.

The meeting was called to order by the president, Dr. W. F. Pitt, Hayti.

The following officers were elected: President, Dr. T. J. Collins, Caruthersville; vice president, Dr. J. R. Pinion, Caruthersville; secretary-treasurer, Dr. W. R. Limbaugh, Hayti; delegate, Dr. J. B. Luten, Caruthersville; alternate, Dr. W. R. Limbaugh, Hayti; censor (3 years), Dr. J. B. Luten, Caruthersville.

The application of Dr. A. J. Speer, Deering, was read and accepted.

Dr. Speer invited the members to hold the next meeting in Deering as his guests. The invitation was accepted for some time in February.

W. R. LIMBAUGH, M.D., Secretary.

PETTIS COUNTY MEDICAL SOCIETY

The Pettis County Medical Society met at the Bothwell Memorial Hospital, Sedalia, December 2. The meeting was called to order by the president, Dr. W. T. Bishop, Sedalia.

The reports of the standing committees and the treasurer were read.

The following officers were elected: President, Dr. H. A. Hite, Green Ridge; vice president, Dr. Gordon Stauffacher, Sedalia; secretary, Dr. Edward H. Schaefer, Sedalia; treasurer, Dr. A. E. Monroe, Sedalia; censor (3 years), Dr. M. P. Shy, Sedalia; delegate, Dr. A. J. Campbell, Sedalia; alternate, Dr. W. A. Beckemeyer, Sedalia.

GORDON STAUFFACHER, M.D., Secretary.

RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met January 14 in the Public Library Building, Moberly. The meeting was called to order by the president, Dr. M. C. McMurry, Paris.

Dr. C. K. Dutton, Moberly, was elected to membership by unanimous vote.

The names of Dr. J. A. Barger, CCC Camp physician, Moberly, and Dr. Harry C. Payne, Paris, were proposed for membership to be voted on at the next regular meeting.

Dr. John F. Patton, St. Louis, presented an address on "Infections in the Urinary Tract." This talk was illustrated with lantern slides and was followed by a general discussion.

Following the meeting a lunch was served at Miller's Cafe.

The following guests and members were present: Drs. John F. Patton, St. Louis; M. C. McMurry, J. F. Flynt and G. M. Ragsdale, Paris; J. A. Barger, G. B. Bowers, C. K. Dutton, O. K. Megee, C. C. Smith, L. E.

Huber, L. O. Nickell, F. L. McCormick, T. S. Fleming, R. D. Streetor, P. C. Davis and M. E. Kaiser, Moberly.

MAX E. KAISER, M.D., Secretary.

STE. GENEVIEVE COUNTY MEDICAL SOCIETY

The Ste. Genevieve County Medical Society held its annual meeting December 12 with the president, Dr. G. M. Rutledge, Ste. Genevieve, in the chair.

The attendance was good and after disposing of regular business election of officers for 1936 was held and the following were elected: President, Dr. G. M. Rutledge, Ste. Genevieve; vice president, Dr. J. A. Wilkins, St. Marys; secretary-treasurer, Dr. R. W. Lanning, Ste. Genevieve; delegate, Dr. A. E. Sexauer, Ste. Genevieve; alternate, Dr. R. C. Lanning, Ste. Genevieve; board of censors, Drs. A. E. Sexauer, C. J. Clapsaddle and R. C. Lanning, Ste. Genevieve.

The president appointed as a committee on public health and legislation Drs. J. A. Wilkins, A. E. Sexauer and R. C. Lanning, Ste. Genevieve.

The treasurer's report for 1935 showed no member in arrears.

R. W. LANNING, M.D., Secretary.

SCOTT COUNTY MEDICAL SOCIETY

The Scott County Medical Society met December 28 and elected the following officers: President, Dr. W. O. Finney, Chaffee; vice president, Dr. E. J. Nienstedt, Blodgett; secretary, Dr. U. P. Haw, Benton.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

14th Annual Meeting, Kansas City, 1936

President, Mrs. Rogers N. Herbert, Nashville, Tennessee.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

12th Annual Meeting, Columbia,
April 14, 15, 1936

President, Mrs. M. Pinson Neal, Columbia.

President-Elect, Mrs. Walter Kirchner, St. Louis.

Adviser, Dr. J. F. Harrison, Mexico.

To Members of the Missouri Auxiliary:

If anything further were needed to warm our hearts to the responsibilities attached to the entertainment of the Woman's Auxiliary to the American Medical Association we found it in the charm and graciousness of our national president, Mrs. Rogers Herbert, Nashville, Tennessee, who went to Kansas City in November for the first convention conference. We were gratified when she approved wholeheartedly all the accommodations and facilities for making this the best convention so far.

Yes, we are just that ambitious, for in addition to housing the American Medical Association sessions and its great exhibits in our new \$5,000,000 Municipal Auditorium, we are hoping that a spirit of friendliness will pervade each and every gathering, business or social. We want this to be remembered as the "friendly convention." To do this we shall need im-

mense numbers of Missouri Auxiliary members who are our closest neighbors, and the ones next to us who will be the most at home. We want you to spread this welcome at the time when the Jackson County Auxiliary members are working behind the scenes. This will be a real service and we appeal to each woman of the State Auxiliary to feel herself hereby appointed a cohostess with us. Our entertainment plans are being made to include every woman attending the convention regardless of Auxiliary affiliation. Detailed plans of our social program are awaiting the president's final endorsement and will be announced later.

The Woman's Auxiliary is assigned to the Baltimore Hotel where we shall use the Francis I room for general sessions, the Pompeian room for banquets, the Renaissance Balcony for exhibits and the Doric and Elizabethan rooms for conferences and small luncheons; the mezzanine floor is well adapted to our needs.

Plan to make Kansas City your home from May 11 to 15. Urge your husband to request reservations at once for hotel rooms from Dr. Ira H. Lockwood, Argyle Building, Kansas City.

Yours for "A friendly convention,"

MRS. H. L. MANTZ, President, Woman's Auxiliary to the Jackson County Medical Society; General Chairman of Convention Arrangements for Woman's Auxiliary to the American Medical Association, 1936.

The February meeting of the Jackson County Auxiliary was held in Epperson Hall and was devoted to the memory of Mrs. Robert Schaffler who was the first president of the Jackson County Auxiliary, having been elected in 1924. Mrs. Andrew McAlester II, who succeeded Mrs. Schaffler as president, paid a gracious tribute to Mrs. Schaffler for her efficient work in the local and state auxiliaries. She mentioned her dignity, poise and absence of all pretense, and her part in helping the Auxiliary grow into the organization of usefulness and service it is today, and concluded thus: "The generous qualities of her heart and mind endeared her to her family and friends. She was not only admired for character and service but for a quality almost indescribable in a person, an individual personality which contributes something distinctive and which cannot be duplicated or imitated. All that she was, we hold in deep and appreciative memory; life has been enriched by her having walked this way. We shall never know her living presence again, but she will remain a tradition of our Auxiliary, a part of its history always."

Mrs. Earl Padgett read Mrs. Schaffler's historical play, "Parnell," in a most delightful manner.

The Women's Auxiliary to the St. Louis Medical Society had a dinner for the physicians and their families on February 18 in the banquet hall of the Medical Society Building.

Why an Auxiliary?

The campaign now well under way to form auxiliaries to the county and state medical societies gives point to the question raised in the Wisconsin Medical Journal, "Why an Auxiliary?" We might as well ask "Why a Wife?" says the writer, who dips his pen in effervescent ink and gives us this:

Medical organization went on for nearly a century in a state of single blessedness. Like an old bachelor it never seemed to realize that it was doing many odd jobs which could be done by a helpmate and that its standing in the community was being sorely neglected. Then one spring morning some ten years ago came a comely lady, who announced herself as

Mrs. Auxiliary, rolled up her sleeves, nudged Mr. Medicine in the side, and said, "Shove over—I'm going to pitch in, help get your house in order, and I'm going to be your partner."

The old fellow, unaccustomed to team work, grumbled and still sputters at times, but down in his heart realizes how efficient she has been. During the years she has grown and developed into a buxom housewife on whom he has learned to depend more and more. She has been helpful in more ways than he realizes and she can do more and more for him as time goes on and he learns more to rely on her. Her main job is to improve his standing in the community. He has been a hermit and has covered up his sterling qualities and his good deeds. He has had few contacts with others and she can do much in bringing about a better appreciation of his work and of his worth.—New York State J. Med., October 15, 1935, also Penn. M. J., December, 1935.

MISCELLANY

COMMITTEE ON MATERNAL WELFARE Prenatal Care

QUESTION.—What would be a reasonable amount of prenatal care in the average maternity cases?

ANSWER.—(1) Encourage early and regular visits to the physician in charge.

(2) A general physical examination including urine, blood pressure, hemoglobin and weight.

(3) Correction of physical defects in so far as possible, especially infections of the teeth, tonsils and vagina.

(4) At each visit note blood pressure, urine examination, amount of weight gain, sleeplessness, vaginal discharge and bowel movements.

(5) At beginning of third trimester have patient report at shorter intervals. Recheck measurements and hemoglobin, heart tones and position of fetus. During the last six weeks estimate size of fetus at each visit and do rectal examination to determine amount of engagement, especially in a primipara.

(6) Give instructions as to general and special diet, should occasion arise for special diet. Give instructions for care of teeth, exercise, rest, sleep and elimination.

(7) Give instructions as to danger signs, i. e., headache, disturbed vision, scant urine output, constipation, vaginal discharge, especially bleeding, excessive gain of weight and edema.

(8) Have patient report anything unusual or the presence of any acute infection.

(9) Never make a vaginal examination of any maternity case without strict aseptic precautions.

Pituitrin in Delivery

QUESTION.—Is pituitrin justified to hasten delivery? What are the dangers if any?

ANSWER.—(1) Pituitrin is never indicated to hasten labor. It seems to be of advantage at the conclusion of the third stage of labor to insure firm contractions of the uterus thus preventing hemorrhage.

(2) It should never be given before delivery unless the cervix is fully dilated, the head well engaged and no existing obstruction to delivery. Some one must be present to administer anesthesia, but not over two minim doses.

(3) Danger, is first, in undilated cervix or in extensive laceration of cervix. Also, if maternal or fetal obstruction exists the result may be rupture of uterus or death or injury to the fetus. Deep perineal laceration and retention of placenta may result from the use of pituitrin before delivery.

(4) Save pituitrin for use at end of the third stage

A series of short selected articles by members of the Committee will be published monthly in this column.

Comments* and questions by members are solicited and will be discussed by members of the Committee.

of labor. Wait rather than hasten labor except in emergencies. Haste may cause loss of life or injury. Intelligent watchful waiting will save lives during labor.

LADIES AND GENTLEMEN: YOUR HEALTH

March Radio Programs by the American Medical Association

March 3. "Cancer." Speaker, Dr. W. W. Bauer. Early recognition offers hope of cure in many cases.

March 10. "Hard of Hearing." Speaker, Dr. Morris Fishbein. Causes, prevention, adjustment to hearing devices.

March 17. "Eyesight Saving." Speaker, Dr. W. W. Bauer. How accidents, disease, abuse and poor hygiene can injure the eye.

March 24. "Hay Fever and Asthma." Speaker, Dr. Morris Fishbein. How innocent foods and harmless substances can cause severe illness.

March 31. "Let Your Doctor Decide." Speaker, Dr. W. W. Bauer. Fallacies in self-diagnosis, self-medication and the advice of friends.

Each Tuesday afternoon at 4 p. m. on a coast-to-coast network of the National Broadcasting Company and on the short waves these programs will be presented.

HONORING DR. T. W. ADAIR IN HIS FIFTIETH YEAR OF PRACTICE OF MEDICINE

M. P. OVERHOLSER, M.D.

HARRISONVILLE, MO.

This part of the program of our meeting is to carry out a ruling made by our County Medical Society over a year ago. We will therefore devote this part of our time to a review of the history, life, fellowship and friendship of one of the most faithful and loyal members of the Cass County Medical Society who has recently passed his fiftieth year in the work of his profession.

For centuries past it has been the custom of organizations and nations to perpetuate the memory of its great men by erecting images of metal or marble after their life's work has ended, but the members of the Cass County Medical Society feel that it is more befitting that evidences of esteem and feelings of appreciation of the lives and services of loyal members of our organization be shown and expressed during the time such members are still with us.

Our organization, therefore, has established the custom of honoring the faithful members of our Society at the time of their life when they have reached their fiftieth year in the practice of their profession. As a representative of the members of our medical organization I have therefore been assigned the duty of presenting to you at this time, something of the life history, the professional work, the loyalty to scientific medicine and the noble qualities of character of our much esteemed member, Dr. T. W. Adair of Archie, Mo.

Dr. Adair was born near Bowling Green, Kentucky, October 9, 1856. He was reared on his father's farm, for whom he worked until he reached the years of his early manhood. He received his preliminary elementary education in the public schools of Warren County in his native state. He farmed one year for himself in Kentucky and worked two years in Texas and one year in North Dakota at the carpenter trade. He states that in

Presented to the Cass County Medical Society at Harrisonville, December 12, 1935.

his early boyhood days he had a natural inclination to take up medicine and surgery as his life's work, and that this inclination was no doubt influenced or strengthened by being in the home of Dr. E. E. Kilmore of Adrian, Bates County, Mo., who was one of the oldest and most well known physicians of western Missouri for many years in the past, and with whom the doctor spent some time in the study of medicine and surgery. Dr. Adair graduated from the Kansas City Medical College in March, 1885. The writer had the pleasure and honor of being his classmate in the same medical school in the year 1884.

The same year of his graduation the doctor hung out his shingle, announcing to the public that he was ready to render his medical service to the citizens of the community of Adrian, Mo., where he first located for the practice of medicine. Some months later he became convinced that Archie, of Cass County, the first town north of Adrian, offered better opportunities for a young physician, to which location he moved in July, 1885, where he has continued his medical service ever since for the last fifty years.

In addition to the practice of medicine the doctor has owned and operated a drug store in Archie for many years past. He was married to Dora Bullock in January, 1890, who proved to be of valuable assistance to him in his professional work and in the operation of his drug store.

The doctor has the distinction of having two brothers who are now, and who have been for many years, actively engaged in the practice of medicine, also a living sister who was the wife of an active physician and in addition two nephews who are now actively engaged in medical practice. He also has a daughter who is a registered pharmacist who now manages and operates, with the assistance of a loyal feminine partner, a thrifty drug store in Adrian, Mo.

During the many years of medical service the doctor has rendered the citizens of his community he has always sought to keep abreast with the advancement of medical science. He attended a post graduate course in Louisville, Kentucky, in the year 1890; in St. Louis in 1896; in Chicago in 1908; and at the Mayo Brothers Clinic in 1933. He is a charter member of the Cass County Medical Society which was organized in the year 1902, and has been a constant, faithful member from that date to the present time. He has contributed liberally to the many programs of our meetings by the presentation of a number of scientific papers on numerous and various medical subjects and also by his interesting and practical discussions, not only on the subjects of medicine but on all subjects coming before our medical organization. He served as the president of our organization in the years 1904 and 1934, also as its secretary in the year 1909 and rendered efficient service as a member of its various committees from time to time. He is a member of the American Medical Association and of the Missouri State Medical Association, to which latter association he has had the honor, more than once, of representing our local society by being elected delegate to our State Medical Association.

Today the doctor has the distinction of being the oldest active practitioner of medicine in both Cass and Bates counties, and also the distinction of having practiced medicine for a greater number of years than any other living physician in either of these two counties.

Aside from his medical work in his home community the doctor has been a substantial and honored citizen. He has served as a member of the Board of Education and has been an important factor in achieving Archie's splendid school system. In local civic development he has been a constant booster for betterment of conditions of his home town and surrounding community.

The doctor's career as a physician and citizen has been a constant honor and trust. His life in all of its various avenues has been marked by modesty, sincerity and devotion to duty, with faithful and efficient service to his patients and to his profession. He has deservedly won the esteem of the citizens of his community by his untiring ministrations to their physical ailments and has been highly esteemed by his medical associates by reason of his ethical and loyal dealings with them in their professional relations. He has been particularly commended by his fellow medical associates for his unfaltering support of organized scientific medicine.

Life is a wonderful and mysterious venture for all of us. Not only are the opportunities for doing good for others unlimited, but these same unlimited opportunities give us all a chance to win for ourselves the love and esteem of our fellowmen.

"We should live in deeds, not years; in thoughts, not breaths; in feelings and not as figures on a dial. He most lives who thinks most, feels the noblest, and acts the best."

Manly traits, sterling integrity, ethical conduct, medical ability and fidelity to our profession of any physician will win the respect and esteem not only of the public in general but of all loyal members of the medical fraternity as well. The members of our local medical fraternity have therefore taken this opportunity to honor him whose life has meant the performance of duty and its faithful accomplishment.

Surely it is worth while to be a faithful and loyal member of the organization of scientific medicine of your county.

BOOK REVIEWS

DISEASES OF THE NOSE AND THROAT. For Practitioners and Students. By Charles J. Imperatori, M.D., F.A.C.S., Professor of Clinical Otolaryngology, New York Post-Graduate Medical School, Columbia University, New York, and Herman J. Burman, M.D., Instructor of Clinical Otolaryngology, New York Post-Graduate Medical School, Columbia University, New York. 480 illustrations. Philadelphia: J. B. Lippincott Company. 1935. Price \$7.00.

This book is based on the course given to students at the New York Post-Graduate Medical School of Columbia University in the diagnosis and treatment of diseases of the nose and throat. The book is well apportioned giving comprehensive material on the conditions frequently encountered and giving less space to unusual conditions; in a few instances only brief comments. The volume, in this as in many ways, is a practical book and valuable for the practitioner as well as the student. The material is principally in outline form making reference use easier. The volume is well illustrated with four hundred eighty cuts, quite a few of them colored.

The first two chapters are devoted to equipment and examination of the patient. The rest of the volume is divided into chapters on the various parts of the nose and throat. Symptoms, diagnosis and treatment are considered first, then the pathology and causation. Chapters on "Physical Therapy and Radiation" and "Allergy" enhance the value of the book.

The volume, written primarily for students, contains many details that are superfluous for the practitioner but as a textbook for students and a practical reference for the practitioner it has a wide field of usefulness.

S. S. B.

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THE SIGNIFICANCE OF CONVULSIONS IN THE DIAGNOSIS OF BRAIN TUMOR

ERNEST SACHS, M.D.

AND

LEONARD T. FURLOW, M.D.

ST. LOUIS

Early diagnosis of a brain tumor is the goal toward which we are constantly working. I have been teaching for years that every adult patient who has a convulsion must be considered a potential tumor case until proved otherwise. However, until my associate, Dr. Furlow, reviewed all our verified tumors, 724 in number, we did not have any exact data on this point.

From this study certain very significant facts have become apparent, some of which I shall try to bring out in this paper. So much interesting collateral information have we gleaned from this study that it is quite impossible in this paper to take up more than a few points. Tonight I shall speak only of convulsions that occur preoperatively. The question of convulsions occurring after operation or continuing in spite of operation is a subject which will be considered in another paper.

In this group of 724 cases (table 1) 150 or 20.7 per cent had convulsions at some time before operation. In this series, 397 patients had cerebral tumors, 247 had cerebellar tumors, and seventy-nine had pituitary tumors. None of

Table 1

1. Verified brain tumors	724
Patients having convulsions	150
Percentage	20.7%
2. Verified cerebral tumors	397
Patients having convulsions	138
Percentage	34.8%
3. Verified cerebellar tumors	247
Patients having convulsions	12
Percentage	4.8%
4. Verified pituitary tumors	79
Patients having convulsions	0
Percentage	0

Presented by Dr. Sachs at the spring Medico-Military Symposium in a joint meeting with the Jackson and Wyandotte county medical societies, Kansas City, Mo., March 10, 1936.

Table 2. Cerebellar Tumors, Verified

Verified cerebellar tumors	247		
Patients having convulsions	12		
Percentage	4.8%		
Cerebellar tumors, verified, in which convulsion was first symptom	0		
Type of Convulsion	Number	Percentage of Total Number	Percentage of Those Having Convulsions
Generalized	6	2.4%	50%
Jacksonian	1	.4%	80%
Cerebellar fits	5	2.0%	42%

the pituitary cases had convulsions. Only twelve or 4.8 per cent of the cerebellar cases (table 2) had convulsions, while 138 of the 397 cerebral tumors or 34.8 per cent had convulsions. In other words, more than one third of all our cerebral tumor cases had convulsions either as the first symptom or at some time in the course of the disease.

A very significant fact and one that deserves great emphasis is that of the 150 patients who had convulsions, twenty-seven (18 per cent) had convulsions (table 3) for periods of time ranging for from five to twenty-five years before

Table 3. Tumor Types in Patients Who Had Convulsions From Five to Twenty Years

Meningeal fibroblastoma	8
Astrocystoma	8
Oligodendroglioma	2
Ependymoma	2
Neuro-epithelioma	1
Glioma, unclassified	1
Suprasellar cyst	1
Angioma of cortex	1
Sarcoma	1
Cyst, unclassified	1
Tumor, unclassified	1

the diagnosis of tumor was finally made. Needless to say these patients had benign, slowly growing tumors; in other words, the kind of cases that should have an excellent prognosis. Due to the fact, however, that the tumor had been present such a long time permanent irreparable damage frequently had occurred and the tumor had attained such great size that what might have been a comparatively simple operation in the early years had become a most difficult one. A striking illustration is the following case.

REPORT OF CASE

Case 1. Mrs. O. E. A., white, aged 51, was referred by Dr. Harvey Smith, East St. Louis, Ill.

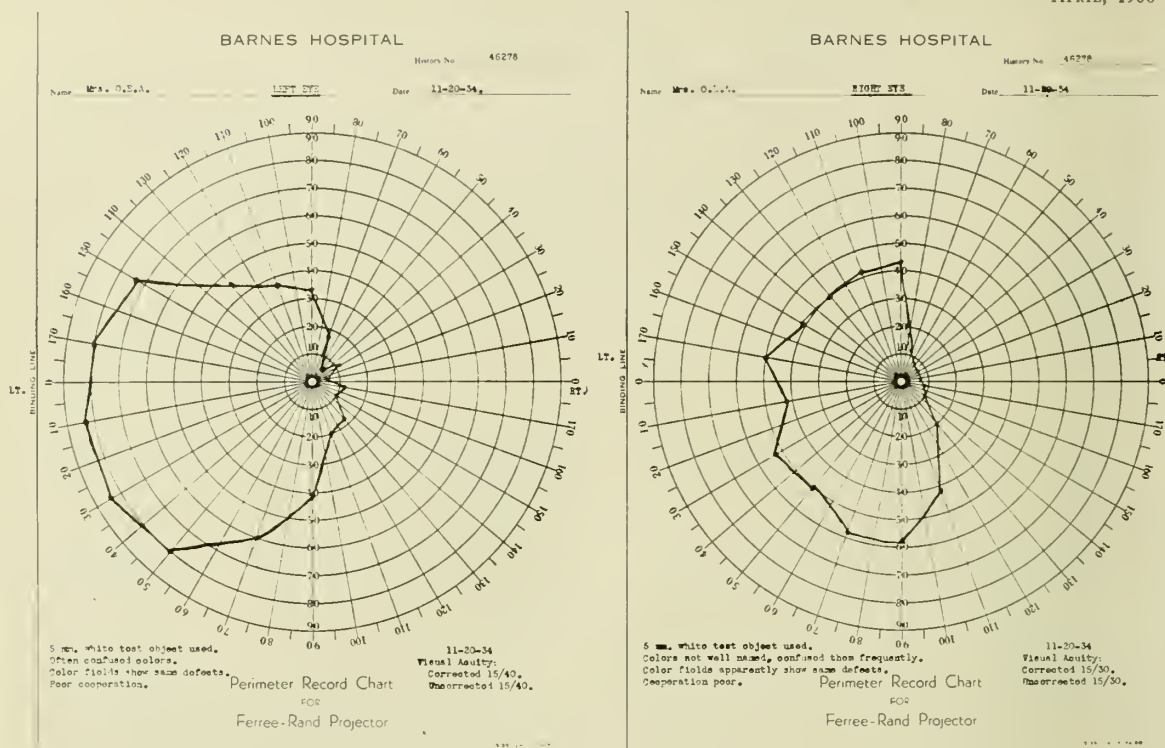


Fig. 1

She was admitted to the neurosurgical service on November 20, 1934, with a chief complaint of convulsions.

The family history was unimportant and no member of her family had had epilepsy.

The past history was irrelevant except that since birth she had had an internal strabismus.

Present Illness.—More than ten years before admission she began having convulsions which always started in the toes of her right foot and spread up the leg to the muscles of the thigh. These attacks were never accompanied by loss of consciousness, and they always remained Jacksonian in type. They recurred at intervals of from a few days to a few weeks without progression, for over six years. She then had an attack which spread to the right arm and the right side of the face. Following this convulsion

she was unable to speak for twelve hours, but after this period of time her speech gradually returned to normal. In spite of phenobarbital and bromides, she continued to have right-sided convulsions more and more frequently, and for two years her family noticed a progressive failure of memory and mental dullness. This was attributed, by the many physicians whom she consulted, to the mental deterioration which occurs during the course of epilepsy. During the year before admission she developed a progressive right hemiparesis, but she never had headache or vomiting.

Neurological examination when we saw her revealed bilateral choked disks of long standing and a recent hemorrhage in the right eye. There was a



Fig. 2. The destruction of the dorsum sellae and the very large middle meningeal artery indicated a slowly growing tumor and made the preoperative diagnosis of meningeal fibroblastoma the most likely.



Fig. 3. The jar on the right contains the tumor mass removed at the second operation, weighing 205 grams; the jar on the left contains the last bit of tumor, weighing 12 grams, which was removed at the third operation.

left internal strabismus which had been present since birth. There was a right hemiparesis, involving the face, arm, and leg, but most pronounced in the leg, with pathological reflexes on the right side. In addition she had an almost complete right homonymous hemianopsia (figure 1). Roentgen ray (figure 2) showed destruction of the dorsum sellae with some slight calcification in the postcentral area and thickening of the parietal bone.

Diagnosis.—A slowly growing tumor, most probably a meningeal fibroblastoma, extending parasagittally from the motor cortex on the left side back to the left occipital lobe.

Operation.—On November 23, 1934, a large left cerebral flap, extending to the median line, was reflected. Because of the increased vascularity of the bone and dura, the bleeding was so terrific that it was necessary to stop the operation after the bone flap had been made and to give a transfusion. A large piece of muscle taken from the patient's thigh, was used to stop the bleeding from the region of the longitudinal sinus, and the flap was replaced without opening the dura.

Three days later, on November 26, 1934, the second stage was done. A very large parasagittal meningeal fibroblastoma was exposed, and all except a small portion of tumor in the occipital region was removed by coring it out with the electric knife. The tumor weighed 205 grams. It was necessary, because of a fall in blood pressure, to stop when this much had been accomplished and to transfuse the patient again.

I waited a whole month then to build up the patient and on December 27, 1934, the rest of the tumor was removed. The small piece which was taken out at this time weighed only twelve grams (figure 3).

She was discharged on January 20, 1935. At that time she still had her right hemiparesis. The fundi were normal and the mental state was markedly improved. The visual fields, however, were unchanged.

COMMENT

Because of the delay in diagnosis it was necessary to subject this patient to three operations instead of one. Her hospital stay was sixty days instead of the usual twelve to sixteen and the right hemiparesis, which would have cleared up promptly had operation been done sooner, will remain as a permanent disability. Fortunately, her visual acuity was not seriously impaired, but the homonymous hemianopsia will remain as a result of the permanent cortical damage to the occipital lobe.

The next point of great interest and importance is the frequency with which convulsions occur in certain types of tumors. Two types have convulsions far more frequently than other types. The percentages are so much higher than in other types that one is justified in predicting before operation the probable type of pathological condition one is going to encounter. These two types are both slow growing. Of seventy-nine meningeal fibroblastomas, twenty-eight or 35.4 per cent (table 4) had convulsions, and of fifty-one astrocytomas, the benign type of glioma, thirty or 58.8 per cent had convulsions (table 5). Furthermore, in the thirty cases of astrocytoma, twenty-six or 86

Table 4. Meningeal Fibroblastomas, Verified, Cerebral

Verified meningeal fibroblastomas, cerebral.....	79	
Patients having convulsions	28	
Percentage	35.4%	
Location of tumor as related to convulsions:		
	Number	Percentage
Frontal lobe	22	78.5%
Temporal lobe	3	11.0%
Parietal lobe	2	7.0%
Occipital lobe	1	3.5%
Cerebral meningeal fibroblastoma in which convulsion was first symptom		
	22	28%
Percentage of total number (22 of 79).....		28%
Percentage of those having convulsions (22 of 28).....		79%
Length of time convulsions present before other symptoms:		
	Number	Percentage
3-6 months	4	18%
6-12 months	2	9%
1-2 years	4	18%
2-3 years	3	14%
3-5 years	1	4%
5-10 years	3	14%
10-15 years	3	14%
15-20 years	2	9%
Type of convulsion:		
	Number	Percentage
Generalized	10	36%
Jacksonian	15	54%
Generalized and Jacksonian	3	10%

per cent, a convulsion was the first symptom, and in seventeen of these twenty-six cases the convulsion occurred six months to fifteen years before any other symptom. Of the twenty-eight cases in the meningeal fibroblastoma group, twenty-two or 78.5 per cent had convulsions before any other symptoms appeared and in eighteen of these the convulsions preceded all other symptoms by from six months to twenty years. Since this type of glioma, the astrocytoma, is either cystic or well encapsulated and can be permanently cured, we have several that have been well for over fifteen years; it is a great tragedy when permanent damage has occurred to the eyesight before treatment has been instituted. Such a case was the following.

Table 5. Astrocytomas, Verified, Cerebral

Verified astrocytomas, cerebral	51	
Patients having convulsions	30	
Percentage	60%	
Location of tumor as related to convulsions:		
	Number	Percentage
Frontal lobe	21	70%
Temporal lobe	3	10%
Parietal lobe	6	20%
Occipital lobe	0	0%
Cerebral astrocytomas in which convulsion was first symptom		26
Percentage of total number (26 of 51).....		52%
Percentage of those having convulsions (22 of 26)....		85%
Length of time convulsions present before other symptoms:		
	Number	Percentage
Less than three months	4	15.50%
3-6 months	5	18.75%
6-12 months	1	4.00%
1-2 years	5	18.75%
2-3 years	3	12.00%
3-5 years	0	0.00%
5-10 years	6	23.00%
10-15 years	2	8.00%
15-20 years	0	0.00%
Total	26	100.00%
Type of convulsion:		
	Number	Percentage
Generalized	11	37%
Jacksonian	14	45%
Generalized and Jacksonian	5	18%



Figs. 4 and 5. These two pictures show the huge lymphangiomatous masses as well as the small pigmented café au lait spots so characteristic of Von Recklinghausen's disease.

REPORT OF CASE

Case 2. W. P., white male, aged 19, was referred by Dr. R. C. Brown, Carmi, Ill. He was admitted to the neurosurgical service on February 16, 1934.

Chief Complaints: Convulsions, blindness, deafness.

Family and past history unimportant.

The present illness began four years before admission when suddenly and without warning he had a generalized convulsion with loss of consciousness. The attack was typically epileptiform. He continued to have similar attacks at frequent intervals, always without aura, and because of the resultant embarrassment stopped attending school. He had no other symptoms for three years but at the end of that time he began to complain of severe headaches in the frontal and parietal region. The headaches became so severe that for about five months prior to admission he was bedridden. Three months before he came in he noticed that his vision and hearing were rapidly failing and at the time of admission he was totally blind and apparently totally deaf. He was extremely uncooperative. Because of the loss of vision and

hearing it was impossible to communicate with him in any way; he resembled more an animal than a human being both in appearance and behavior. He was totally incontinent and apparently had lost the sense of both taste and smell, for no matter what was put in his mouth he chewed and swallowed it and he did not react in any way to strong and offensive odors.

Examination showed numerous manifestations of Von Recklinghausen's disease, viz., pigmented spots, fibromatous nodules and large lymphangiomatous masses on his back and left ankle joint (figures 4 and 5). Some of these had been present since birth.

The positive neurological signs were: Apparent bilateral total loss of smell. The pupils were fixed and dilated and there was complete blindness. The fundi showed marked papilledema with hemorrhages and extreme secondary optic atrophy. His hearing seemed entirely gone and there was no reaction when bitter substances were placed in his mouth. There

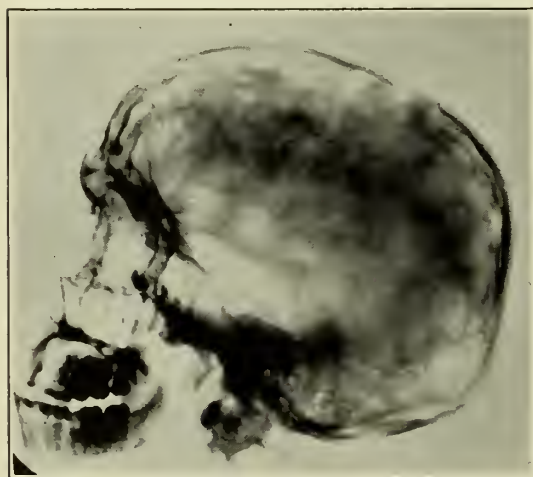


Fig. 6. Marked pressure skull with very large, deep sella turcica and practically obliterated dorsum sellae.



Fig. 7. Dilated left ventricle, air in the anterior horn, no air passed into the opposite ventricle.



Fig. 8. When the air was introduced into the right ventricle, it was collapsed, partially obliterated, and out of its normal position, nearer the median line than normal.

was a peculiar fine tremor of the left hand and there were bilateral pathological reflexes.

Roentgen rays of the skull (figure 6) showed marked pressure with a large deep sella, the floor of which was eroded and the dorsum was pushed forward.

The diagnosis was brain tumor, probably in one of the frontal lobes, but ventriculography was necessary for an accurate localization. The ventriculogram was made on February 21, 1934. Our interpretation of the plates was as follows: "The left ventricle is dilated (figure 7) and no air goes across into the right ventricle. However, when air is put into the right ventricle (figure 8), the posterior horn appears normal but the anterior horn and body are practically obliterated and are pushed down and slightly across the median line. There is a tumor in the right frontal lobe which has almost obliterated the foramen of Munro."

Three days later, on February 24, a right frontal flap was reflected. A huge cyst was evacuated and the nubbin of tumor in the cyst wall was entirely removed.

His postoperative recovery was rapid. On the second day he could hear low tones and would answer questions. At the present time, except for high tones, his hearing is normal. He is a bright, intelligent young man, neat in his dress and meticulous as to his personal habits. He has progressed rapidly in his knowledge of Braille, for his vision is permanently destroyed.

COMMENT

This case is an excellent surgical result, but pathetic when one considers that three to four months delay meant the difference between total blindness and good vision. Had encephalography been done before any of the signs of pressure appeared the diagnosis would have been obvious and the operative procedure less formidable. The deafness in this case is very unusual and must have been due to the great in-

crease in intracranial pressure for it cleared up promptly when the pressure was relieved.

Does the location of the tumor influence the occurrence of convulsions? Earlier in this paper I have noted that convulsions occurred far more frequently in cerebral tumors than in cerebellar tumors; in 34.8 per cent of cerebral tumors and in only 4.8 per cent of cerebellar tumors. On further analysis we find what is not at all surprising, that the tumors located in the frontal lobes give rise to convulsions far more frequently than tumors located in any other region. In the meningeal fibroblastoma group this occurred in 73.5 per cent of cases and in the astrocytoma group in 70 per cent of the cases. These figures might be somewhat changed in a future series when a more careful record of sensory convulsions has been obtained. We have records of a number of patients who probably had temporal lobe attacks in which the patients themselves described what undoubtedly were "dreamy states," but none of these have been called convulsive attacks unless the aura was followed by a motor convulsion. We have classified as Jacksonian any convulsion which had a definite localizing value, e. g., a motor convulsion which was confined to one part of the body or which definitely and systematically started in one extremity. Convulsions which were preceded by an aura such as an hallucination of smell, taste, vision or hearing, were also included in this classification; but no attacks of unconsciousness in which convulsive movements were absent were considered as true convulsions.

There has been a very general belief among medical men that if a patient has a Jacksonian or focal convulsion it is of much greater significance than if the convulsion is general. On this point we have some very significant data. In the meningeal fibroblastoma and astrocytoma groups the figures are identical; 54 per cent had Jacksonian convulsions, 36 per cent had general convulsions, while in the remaining 10 per cent convulsions were both general and focal. This emphasizes one of our original premises, that it makes no difference whether a patient has a general or focal convulsion or both, in either case it may be produced by a brain tumor. This is well illustrated by the following case.

REPORT OF CASE

Case 3. Miss A. V. L., white, aged 27, was referred by Dr. H. W. Wiese and Dr. A. D. Carr, of St. Louis. She was transferred to the neurosurgical service on February 28, 1933.

The family history and past history were unimportant.

The present illness began seventeen years before, at the age of ten, when she had a generalized convulsion. The convulsions recurred at frequent intervals



Fig. 9. A very hard tumor removed from case 3.

and were always epileptiform in character, i. e., there was no aura, the convulsion was generalized, consciousness was lost, there was increased salivation, the tongue was bitten, and the attack was followed by a period of coma, usually about thirty minutes in length. In addition to the generalized convulsions, she had also had petit mal attacks for ten years, during which she would lose consciousness and stand with her eyes fixed and staring for a few seconds.

Two years before admission she went into status epilepticus. She had thirty-one convulsions before consciousness was regained.

Two days before admission she again began having a series of attacks. Because of this condition, hospitalization was advised. In studying the convulsions which she had after admission Dr. Carr and Dr. Wiese noticed that they started with a flexion of the left forearm, accompanied by a turning of the head to the left side. As soon as the convulsion had been controlled, roentgen ray plates were made which showed an intracranial calcification in the right frontal region. Because of this, she was transferred to the neurosurgical service with a diagnosis of right frontal lobe tumor, either a cyst or a meningeal fibroblastoma.

In spite of this roentgen ray finding a ventriculogram was deemed advisable, and on March 6, 1933, this was done. The films showed that the anterior horn of the right ventricle was pushed backward, so a right frontal flap was immediately reflected. A very hard, irregular tumor mass was removed (figure 9) together with the surrounding cortex, and the flap replaced without leaving a decompression. She was discharged on March 20 and with the exception of an occasional mild petit mal attack, usually about the time of menstruation, she has remained well.

COMMENT

This patient had been seen by many competent observers, and it is well established that only after seventeen years did the convulsions become Jacksonian in type. It is unusual that she developed no signs of increased intracranial pressure, but the lack of localizing signs is easily explained by the location of the tumor.

The pathological type of this tumor has never been established although many pathologists have been given an opportunity of studying it.

Table 6. *Spongioblastoma Multiforme, Verified, Cerebral*

Verified spongioblastoma multiforme, cerebral.....	66	
Patients having convulsions	25	
Percentage	38%	
Location of tumor as related to convulsions:		
	Number	Percentage
Frontal lobe	10	40%
Temporal lobe	12	48%
Parietal lobe	3	12%
Occipital lobe	0	0%
Cerebral spongioblastoma multiforme in which convulsion was first symptom.....	12	
Percentage of those having convulsions (12 of 25)....	48%	
Percentage of total number (12 of 66).....	18.5%	
Length of time convulsion present before other symptoms:		
	Number	Percentage
Less than three months	6	50%
3-6 months	1	8%
6-12 months	3	25%
1-2 years	2	17%
Type of convulsion:		
	Number	Percentage
Generalized	5	20%
Jacksonian	18	72%
Generalized and Jacksonian	2	8%

In the more rapidly growing type of glioma, the spongioblastoma multiforme, more recently, for no very good reason that I can see, called glioblastoma, convulsions also occur but they are far less frequently the initial symptom. Of sixty-six spongioblastomas, twenty-five or 38 per cent had convulsions (table 6) but in only twelve of these was the convulsion the initial symptom; and when this did happen the convulsion was immediately followed by other symptoms, usually by the signs of increasing intracranial pressure. This is the only group in which convulsions occurred less commonly in frontal lobe lesions but due to the infiltrating nature of the tumor it is frequently impossible to determine definitely the limits of the tumor. In only two of the twenty-six cases were convulsions present longer than a year and in none for more than two years.

In the rarer types of tumor (table 7), convul-

Table 7. *Other Cerebral Tumors, Verified*

Type	Number	Number Having Convulsions	Percentage	Number Having Convulsions as First Symptom	Percentage
Astroblastoma	10	4	40%	2	20%
Neuro-epithelioma	5	3	60%	3	60%
Medulloblastoma	3	1	33%	1	33%
Ependymoma	16	6	37%	4	25%
Spongioblastomapolare	12	2	17%	1	8%
Glioma: unclassified	25	2	8%	2	8%
Cysts	28	4	14%	2	7%
Tumor: unclassified	1	1	100%	1	100%
Ganglioneuroma	3	1	33%	1	33%
Cholesteatoma	1	0	0%	0	0%
Osteochondroma	1	0	0%	0	0%
Pinealoma	11	3	27%	0	0%
Oligodendroglioma	12	5	42%	4	33%
Angioma	13	8	62%	6	45%
Hemangioblastoma	7	2	28%	2	28%
Granuloma	21	5	19%	1	5%
Perineurial fibroblastoma	2	1	50%	0	0%
Miscellaneous and metastatic	40	8	20%	6	15%

sions also occurred but these cases illustrate nothing of unusual interest other than that convulsions are always more frequent in slow growing tumors. Thus in 42 per cent of the oligodendrogliomas and 37 per cent of the ependymomas, convulsions occurred; and in 33 per cent of the former group and in 25 per cent of the latter the convulsion was the initial symptom.

In the rapidly growing tumors, such as astroblastomas, pinealomas, and medulloblastomas, convulsions occur fairly frequently as may be seen in table 7, but usually they occurred late in the disease and long after other symptoms had appeared.

From this study we have the following conclusions:

CONCLUSIONS

1. Convulsions either general or focal are frequently the first evidence of brain tumor.
2. Convulsions occur much more commonly in cerebral tumors than in cerebellar tumors.
3. No patient in this series with a true pituitary tumor had convulsions.
4. Convulsions occur most frequently and in many cases are the first symptom in the slowly growing encapsulated tumors, the astrocytomas and meningeal fibroblastomas, and these are surgically the most favorable.
5. Tumors involving the frontal lobes produce convulsions most frequently.
6. Convulsions may precede all other symptoms of brain tumor by many years.
7. The cure of a brain tumor patient without permanent disability necessitates diagnosis at the earliest possible moment.

Since convulsions so frequently are the first symptom of brain tumor, every patient who has a convulsion should be considered a potential brain tumor case until proved otherwise.

503 University Club Building.

AUTOTRANSFUSION IN TREATMENT OF WOUNDS OF HEART

Charles M. Watson and James R. Watson, Pittsburgh (Journal A. M. A., Feb. 15, 1936), used autotransfusion to combat the excessive loss of blood resulting from a stab wound in the heart. As far as they can determine by a review of the literature, this is the first time autotransfusion has been used in the treatment of this type of injury. In view of its marked success in this instance, they believe that it should receive further trial as an adjunct to cardiorrhaphy in those cases in which the loss of blood is sufficient to threaten the immediate survival of the patient. The patient returned for an examination for months after discharge from the hospital, stating that he felt fine and was working again. The chest was essentially unchanged except for some improvement in the deformity, and a roentgenogram showed thickened pleura but normal heart lung shadows. An electrocardiogram was negative.

AN ETHICAL PLAN FOR THE MEDICAL CARE OF THOSE IN THE LOW INCOME GROUP

WM. T. COUGHLIN, M.D.

ST. LOUIS

There undoubtedly is a loud demand now being made by certain individuals, groups and organizations for free medical services for a large part of our population.

The writer is of the opinion that most of the "atmosphere" in favor of such change has been created by those who expect to profit in some way by the change and that in the creation of this atmosphere or widespread opinion the patient who would benefit only to the extent of receiving free medical service, has had no part whatever; that is to say, the desire for free medical service did not originate with those whose only reward is to be free medical service.

Who, then, are they who most loudly acclaim the merits of such new system? Why, those to be most financially benefited, of course; the social service employees, all those engaged in "social" work, so-called. Employees of the great "Foundations" for social welfare or uplift and *id genus omne* who must uplift—or uproot—something or other in order to hold the jobs they now have; and who also would create other jobs of the same sort for their friends or dependents.

And who are they who are most opposed to giving free medical service or any other service free to those who are able to pay for it? Of course, all those who wish to pay for what they get and to earn what they receive, proud of spirit and independent, and all who know that the worst way to treat a man is to cause him to lose his self-respect by pauperizing him with unneeded charity. Of course, the medical profession is opposed to state medicine not only for these reasons and maybe for economic reasons, but by far the majority of us oppose it because of our certain conviction that state medicine means retrogression instead of medical progress and at least mediocrity rather than the highest efficiency and skill in the treatment of the patient.

He who imagines that the profession is opposed to state medicine only on economic grounds, for fear of curtailment of our financial gain, is either forming his opinion on imagination alone, is not very well informed concerning the history of our profession or else must be just a common bare-faced "partisan."

One need only pause and consider a moment. Think of the financial gain the profession sacrificed every time it took a step for the prevention of disease. Why did they and why do they

introduce and advocate vaccination against smallpox, antitoxin against diphtheria, anti-typhoid serum and quinine, just to mention a few of such "foolish" things. Do you believe that any physician was ever so dumb as not to know that the widespread use of these must certainly work toward the lessening of his income? Can one be so ignorant as to know nothing of the efforts the profession as a whole has made for the adoption of rules, regulations and laws for better public health and hygiene? Did you ever even hear that any respectable, regular physician had taken any step, done anything, or said anything in opposition to the passage of any law that must certainly work toward the better health of the public—aye, even though it meant financial ruin for himself and family? How many of the surgeons of your acquaintance are today opposed to the nation-wide, yes, world-wide, effort to cure and control cancer? And who, may I ask, is to be benefited, and who to be financially injured, when such a cure has been discovered? And who do you suppose will make that discovery; some politician or some of the notoriety-seeking, place-holding, socialistic sob-sister with the urge to uplift? Don't be ridiculous. You know who is fostering the cancer research, you know who will one day find its cure and you well know that with cancer it will be as it was with smallpox, diphtheria, typhoid, diabetes and all the rest; that cure will be freely given without financial recompense, without patent, right or reserve to those whom we are so anxious to relieve, and that dread disease will cease to be the slayer of one seventh of our people. And whom will you have to thank? And who will have his income curtailed?

Do you wish to select your own physician, of any kind, from anywhere? Or would you prefer to have some other person tell you what physician you may select? Shall we have the state do it? Do you want your physician when you want him or would you prefer to be obliged to take one in his place and at his convenience? You who are now insured at work with various corporations; are you allowed to choose your own doctor or surgeon or does the company tell you that if you select any doctor not a company doctor you must pay him yourself?

To my own personal knowledge the best men in our profession have seldom been those sought by corporations to care for their employees nor by insurance companies to care for their clients. Never have I found that the selection of a physician to fill any such position was based altogether on his professional qualification, his scientific attainment or technical skill. Corporations and, above all, insurance companies have something more important to consider. The surgeon employed must be such a one as

can in all questions of dispute take sides with the employer as against the patient. To expect as good service from some one employed by the month as from one paid for the services rendered in each case is just expecting too much from human nature.

I unhesitatingly state that from my experience in army service, there is no comparison whatever between the average service rendered the patient in private life and the average rendered the patient in the army. No surgeon in private practice could possibly survive were he to treat his patients as they were treated in the army. Private patients in any walk of life would never put up with it.

The shibboleth that the state owes every one efficient medical care, has about as much truth in fact as the claim of that parrot who asserted that the state owed every man a job. Just what is the state anyway to the tender care of which those sweet singers would consign every one for all the ills or necessities of life? Why, the state to them is just you and me and other taxpayers, for themselves, in the main those whom I know best pay no taxes at all or at most a scant irreducible minimum. And, of course, since you and I are too much occupied with making a living and the money to pay our taxes, these seekers of softer systems must perforce become the administrators of all these new systems at so much per.

Now it is perhaps true that the person in the smaller income class, laying by nothing for the rainy day, old age or illness, finds himself utterly unable to pay for what is necessary when illness comes upon him. It may be he has been improvident and that he might have been in different circumstances; but that is beside the question. The question is, what can we do to help those who ought to be aided when affliction comes? Well, let us have the state take care of them, say our Soviet-minded sons. Let them all then go to the municipal hospitals throughout the land. Well, that might be all right for the Soviets and good enough for them; but I maintain that it would be better if in his illness or accident the patient even though without money could select the physician and the hospital of his choice and have everything that is needful in maintenance, medical and nursing care until restored to health.

At the present moment and in fact for several years past, the hospitals, or groups of them, in various cities have adopted a voluntary system of insurance by which for a nominal fee, monthly or annually, the patient is guaranteed hospital care for a period about twice as long as the stay of the average patient in hospitals per year.

The medical profession could and undoubt-

edly would if permitted by law (the insurance companies) adopt a similar plan with regard to professional services for those in the same classes. The person wishing to avail himself of the benefits of the plan would merely have to apply to the local medical society, pay the required fee, instalment or otherwise, and for the time or amount agreed upon, and then when necessity required, the patient could be allowed free choice of physician, of surgeon and of hospital. His only restriction would be that he must choose a member of the medical society in good standing. Nothing now pertaining to plans of admission of patients or rights of staffs need be in any way changed. The hospitals with closed staffs or restricted staffs or open staffs would continue as they are or change in any way they might see fit.

We physicians and surgeons would have to agree among ourselves on certain fixed fee schedules. We should render our itemized statement to our local medical society and receive payment in each case for the services rendered and not more nor less.

We are willing to do this ourselves. We are not willing that this shall be done for us by the state nor by any insurance company.

And consider the effect of such a practice first on the patient. He is not pauperized nor made a dependent of the state. He retains his pride of spirit. He is paying for what he gets and is glad. What a burden of worry is removed from the honest-hearted head of a family. How much better health is he likely to enjoy and how much better work will he be able to do if this bugbear of illness and want be removed as such a system would remove it.

Then consider its effect on us as physicians and surgeons. The knowledge that we were affording the best without strain or stint to those worthy of our best efforts, the satisfaction of knowing that our success must depend on our satisfied patients.

Consider the effect from the standpoint of medical progress. Postgraduate study would become the rule; every advantage offered the physician he would avidly avail himself of; the medical society would increase in numbers and in usefulness to its own members in direct proportion to the widespread benefit to the citizens. There is not a word of valid argument that can be effectively used against the adoption of such a scheme.

I acknowledge, however, that there is much that can be said against it. I can see that the insurance and company doctors would certainly not benefit much by the adoption of such a plan. Under it they would be placed on an equal footing with others. Don't blame them for being opposed to it. I am sure the insurance com-

panies would not find it much to their financial advantage and I would expect them to oppose it. There may be some physicians who are opposed to the idea of a fee schedule, a fixed price for every professional service, because that fee would have to be small, but these should remember that under such a system all would be paid for and that although there could never be any large fee for an operation yet there would be no dead beats, and that this plan is not intended for everybody but only for those patients by whom the payment of the cost of necessary medical care under our present system is impossible or a great hardship.

Do you think we should do anything about it?

University Club Building.

THE PARATHYROIDS IN RELATION TO CHRONIC ARTHRITIS

A PRACTITIONER'S COMMONPLACE VIEWPOINT

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The parathyroids are the most irregularly situated of all the endocrines. There are normally four of these little glands to be found in man but there may be several supernumerary glandules. They may be found at random in the upper mediastinum from the posterior surface of the thyroid to the manubrium. They may be entirely within the capsule of the thyroid or the remnant of the thymus, or some be within and some without, ranging up and down the course of the carotids.

Man cannot survive total extirpation of the parathyroids. When animals supposedly do so it is because supernumeraries have not been found and are consequently left in.

The glands are made up of two kinds of cells: The chief cells and the oxyphile or eosinophile cells. Hanson¹ says, "this would indicate that the parathyroid has at least two functions; namely, control of calcium-phosphorus metabolism, and another as yet unknown." So far it has not been determined whether the parathormone is derived from the chief cells or the oxyphile cells, as the extraction of this hormone is done from the entire gland.

From a theoretical standpoint it has seemed to us that these two cells are possibly antagonistic to each other; that one cell has to do with calcium metabolism-stabilization, and the other may govern the phosphorus content of the blood and other tissues. When we speak of calcium metabolism, we refer to the distribution of calcium in normal bone formation throughout life; to the variations from normal in these formations as exemplified by rickets,

the deficiency disease, and marble bones, the superfluous. We contemplate the calcium ion concentration that is necessary for muscle contraction; the stabilizing effect of a normal serum-calcium balance on the vegetative nervous system and the production of fibrin from fibrinogen.

In contradistinction to the laying down of the bone salts in normal bone growth, we call attention to the redeposit of calcium from an overloaded blood serum. This act does not partake of the nature of true bone formation but is more of a precipitation, wholly without design and careless of position or structure, though a roughened or discomposed area is usually preferred.

No consideration of calcium metabolism would be complete without speculation as to the influence undoubtedly exercised by vitamin D. It has not been definitely settled as to whether the dog wags the tail or vice versa. There are physiochemists who contend that the vitamin stimulates the parathyroids, while others think the role of the vitamins is secondary to the activity of the glands.

Pending complete accord in their laboratory experiments it suits our purpose to look upon the glandular influence as that of the drayage contractor who procures and hauls truck loads of lime to the building site and dumps it. The masons are represented by the osteoblasts. These masons go through life carefully laying the building materials furnished by the parathyroid contractor, probably under the architectural supervision of vitamin D.

There come periods when few or no masons are on the job and the material is dumped in a haphazard manner known to us as nodes, fibrosities and hypertrophies. There are other times when the masons are idle due to the inability of the contractor to supply material and then again there may come a mix-up in the contractor's office, orders are duplicated and reduplicated to such an extent that all possible sources of obtaining lime are strained and the amount dumped on the masons overwhelms them and no orderly disposition is possible.

Just how and when the masons consult and coordinate with the architect, now called vitamin D, in the process of true bone formation is also under the scrutiny of our physiochemists. Needless to say, neither the parathyroids nor vitamins are self sufficient in the construction of skeletal framework; they must work through the bone forming cells.

Continuing the allusion: It should be noted that the architect employs two sets of masons, one set, the osteoblasts, construct or lay down bone salts in orderly fashion; and another set, the osteoclasts, whose sole duty, it would seem,

is to tear down structures or render calcium available to the serum.

We are in accord with Barr² as to the modus operandi of a hypercalcemia. It seems highly probable that the introduction of a superabundance of parathormones into the circulation does not directly produce this condition but primarily causes a hyperphosphatemia which, in turn, automatically calls for a neutralizing hypercalcemia. In other words, we look upon the blood phosphorus content as we would a thermostat. Any increase in the blood content of phosphorus over a set level opens the valve that controls the calcium level. Calcium is then taken up by the blood from the skeletal storage most accessible, until a sufficient counteraction has depressed the phosphorus level to a normal basis, when the valve closes and so remains until another "blow off" takes place. This seems the most logical explanation of this process and parallels the counteraction of pituitary hormones.

Both calcium and phosphorus must be supplied to all the tissues of the body requiring them and maintained in harmonious proportion. This harmony has been found to be disturbed from an endocrine viewpoint only in relation to dysfunction of the parathyroids. Disturbed function of pituitary, ovary, adrenals and thyroid has at times been noted during a calcium disturbance. If there was any relation between the two conditions it was indirect; a dysfunction of one of these glands influenced the parathyroids to overactivity, for the injection of the various hormones from these several glands has not caused a hypercalcemia.

Ballin³ has so concisely yet clearly defined the results of parathyroidism that we quote at length:

"To understand the parathyroid disturbance properly it is of the utmost importance to have a few basic facts in mind. First, if a parathyroid is irritated by hyperplasia or by an adenoma its function will be stimulated, more parathormone will get into circulation and this parathormone leads to decalcification of the skeleton. This again expresses itself by an increase of calcium in the blood serum accompanied by a decrease of the serum phosphorus. A negative calcium and phosphorus metabolism is the result; also an increased secretion of calcium and phosphorus in the urine will result. This premise now has to be accepted as a fact. Numerous experiments have been made showing that by injecting parathormone over a period of weeks or by giving large doses in short periods one can reproduce all the symptoms of parathyroidism. The increased parathormone put into circulation will cause hypercalcemia and this increased quantity of calcium in the

blood is taken from the great calcium storehouse, the skeleton. Besides this experimental proof that parathyroid extract in overdoses really is responsible for the syndrome of parathyroidism, we have a second practical proof; that is, the clinical evidence that the serious symptoms of the disease are cured by parathyroidectomy, be it the removal of an adenomatous parathyroid or be it a hyperplastic parathyroid."

Parathyroidism may easily be mistaken for neurasthenia for the most pronounced symptom is hypotonia and lassitude. Hyperparathyroidism means hypercalcemia and hypophosphatemia. It takes calcium to combine with the phosphorus in order to put the latter in a soluble state that can readily be eliminated. Hypoparathyroidism means the glands have become exhausted and can no longer maintain the balance, consequently we have a rising rate of phosphorus with a depleted amount of serum-calcium totally incapable of combating it.

Now we do not find a relationship to the cause of arthritis in either of these conditions of the parathyroids. If an excess of lime salts is required at any time to suppress a rising flood of phosphorus, the blood serum absorbs it from the most accessible storage, which is usually the trabeculae or epiphysis of the long bones. However, should there be another process going on at this identical time, one that, with our present knowledge, we cannot find related in any manner to the overactivity of the parathyroids, a process of swelling or edema of the synovial covering of the ends of those long bones, these joint surfaces may now prove to be much more accessible as a source of calcium than the normal shaft and as a consequence an atrophic type of joint will be found when the swelling subsides.

In the event of a rather persistent hyperphosphatemia it would seem that the antagonistic process, the mobilization of serum-calcium, becomes hyperactive; that is, more calcium is picked up from the bony storehouse than is required for the submergence or elimination of the surplus phosphorus, and when it is found to be not needed to combine with phosphorus it may be rather haphazardly redeposited in soft tissue as nodes; in ligaments as along the vertebral column or on a roughened or swollen joint surface producing the hypertrophic type of arthritis. It is conceivable that during the absorption stage a small amount of calcium may have been taken up from an edematous bone end; enough to cause a roughening. This may then become the seat of a vast deposit of the surplus lime when the automatic signal has been sounded that it is no longer required. Thus an atrophic joint may be converted into a hypertrophic type.

It should be emphasized in no uncertain manner that a serum-calcium hunger, however created, whether through overactivity of the parathyroids by an excessive serum-phosphorus content or otherwise, may be satisfied through the absorption of skeleton calcium from trabeculae, epiphysis or damaged articular surfaces, and yet the total serum-calcium content may show no abnormal variation. Therefore a serum-calcium content of 10 mgm. per 100 cc. of blood does not rule out that a calcium change may then be in progress.

We have referred to the fact that we think there is no causal relationship between the swelling of the joint tissues and the parathyroidism. In a comparatively few of the estimated twenty million disturbed joints afflicting the army of arthritics in the United States, we think trauma played the leading role in causing the original swelling. In the vast majority we are convinced the edema was an allergic reaction.

From what has been said it may be interpreted that the bone deformity, called arthritis, is merely one symptom, although the one most frequently seen, of the shifting location of the lime salts making up our skeletal framework and blood serum content. Therefore, we may consider chronic arthritis as one of the stages of calcium metabolism and dependent completely upon there being a concomitant edema (allergy) of the synovia.

You may well ask: What is the practical significance of this theory?

Our conception of it is that if you can prevent the original joint edema you can, first, prevent the occurrence of acute arthritis, and secondly, you remove the primary essential to all chronic joint changes other than the purely mechanical. Without an edema of the synovia or periosteum of a joint the protection remains impervious to either an absorption or redeposit of calcium within a joint.

Surgeons report considerable difficulty in locating the several parathyroids for inspection when parathyroidectomy is contemplated. Pathologists state that they cannot always be found postmortem. But, "familiarity breeds contempt." It is possible we may become so well acquainted with these little glands that we may strew them along our future surgical pathway in the same reckless manner that tonsils and teeth mark that of the recent past. Indeed, considerable experimental work along this line has already been done. Much more is desirable. Oppel,⁵ Ballin and Morse⁶ report encouraging results from the removal of a parathyroid. Oppel⁵ says pain and stiffness were relieved almost at once. The beneficial influence of parathyroidectomy on pain and stiffness of the spine

was marked in all cases. Merritt¹ reports improvement in his cases of hypercalcemia producing cystic degeneration of the long bones and vertebrae by irradiation of the parathyroids.

From Soviet Russia come reports of more cases operated on than from any other source we have knowledge of. Schkurov⁸ reports 116 cases of chronic polyarthritis and spondylarthritis in which only 8 patients failed to get relief from pain and swelling and have restored a considerable degree of mobility following parathyroidectomy. Schkurov gives Oppel the credit for establishing the rationale of the procedure.

In as much as surgical interference is apparently still in the experimental stage in this country and abroad, and roentgen atrophy of the glands has not proved uniformly encouraging, our only other route of attack lies in the prevention of allergic^{3, 7} reaction in the synovia against allergens from foci of infection and protein foods. There will undoubtedly be times when a hyperplastic gland may be suspected or an adenoma may be removed. But these occurrences will be so few compared to the irregular and transitory overstimulation of the parathyroids that may occur from numerous causes that they will prove exceptional. And always we will be faced with the problem of whether the hyperparathyroidism is mechanical due to hyperplasia, or adenoma due to endocrine influence, or automatically induced by hyperphosphatemia not causally related to the endocrine system.

SUMMARY

The parathyroids are anatomically aberrant and physiologically abstruse.

We credit them with the supervision of calcium-phosphorus metabolism.

In building the skeleton for human structure we consider the parathyroid as the contractor, furnishing the lime; vitamin D as the architect, the osteoblasts as the masons that orderly distribute or build while the osteoclasts are the masons that dismantle.

The storehouse for calcium is the skeleton.

The trabeculae and ephiphysis offer the least resistance to absorption of lime salts until an allergic edema of a synovia makes that from the end of a bone more accessible.

Injection of hormones from any and all other glands fails to produce hypercalcemia. Injecting the parathormone invariably does.

Overactivity of the parathyroids or any other gland does not produce an edema in or around a joint.

Chronic arthritis, i. e., bony change of the joint structure, is a dual process.

The primary edema is probably due to allergy, bacterial or food, in 99 per cent of the

cases. Once injured, the synovia are subject to manifold trauma.

A calcium disturbance must supervene during the edematous state in order to secure lime from or add to that of the joint surface.

Chronic arthritis is a shifting state of the phenomena calcium metabolism. Encouragement is lent through the experimental surgery being done on the parathyroids.

Prevention of allergic synovial reactions will prevent the bony change designated chronic arthritis in all save the purely traumatic and the septic joints.

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THE TREATMENT OF CHRONIC UNCOMPLICATED MALNUTRITION

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It is difficult to evaluate statistically the disadvantages of individual malnutrition. Dublin,¹ correlating the cause of death with the initial weight of many life insurance risks, has shown that below the age of 45 there is a distinct rise in the death rate of the underweight person. Attempts to correlate industrial efficiency² with body weight have been suggestive rather than conclusive. There is a widespread tendency to consider malnutrition in school children as a frequent cause of poor scholastic achievement. In an unpublished study I was unable to confirm this impression but I did find a certain concomitance.

Height-weight-age charts are being largely discarded as a measure of nutritional status; instead various complicated measurements have been proposed. Speaking by and large, one may say that the normal weight is that weight at which the body is pleasingly and symmetrically developed and at which the individual feels best; a method of measurement involving considerable bias. Whatever the proper method of determining malnutrition, it is true that the underweight person is likely to complain of easy fatigability, inability to keep up physically with more robust companions and frequent

malaise. It is also true that the chronically underweight person who gains weight feels stronger, is less easily exhausted and experiences an increased sense of bodily well-being.

There are a significant number of persons seemingly free from infectious and disease processes, persistently underweight according to any of the commonly accepted standards. There is ordinarily no difficulty in restoring the weight lost by a robust person during protracted illness or after debilitating operation. Those in the latter group gain because earlier acquired good habits of adequate eating persist; those in the former group fail to gain because they have never learned to eat adequately despite their assertions to the contrary. Two individuals of the same height and age, engaged in similar occupations, consuming food of equal caloric value, may show widely dissimilar weights due to great differences in their metabolic expenditure.

Theoretically, it is possible to measure the caloric expenditure of any one by means of the Douglas bag; practically, it is impossible to do so. However, inspection of any group of persons at work or at play will quickly reveal considerable differences in their energy consumption. For example, if one watches a school yard during recess he may divide the children into three groups. The first two groups rush into the yard at the ringing of the bell and immediately begin play. They are followed by a third group composed of excessively fat or excessively underweight children who indolently reach the play space, there to sit or stand quietly until the end of the recess when they drag themselves back to class. Meanwhile, those who rushed out to play have divided themselves into two groups. Some continue play, thoroughly enjoying each move of the game. Others, moderately undernourished or overnourished pupils incapable of continued physical strain, tire, move at a slower pace, sometimes drop out to rest before the necessity of resuming class. The normal weight group has continued to play hard, along with those exceptional, tireless though seemingly underweight, thin, wiry muscularly efficient, small-boned persons. Again, in a group of adults gathered for an evening's diversion, the corpulent person is prone to sit passively in one place making feeble or no speaking gestures, shoving his chair and body en masse when required to move. Opposed to him is the thin, active, restless person who enforces each spoken phrase with appropriate body motion, constantly shifts position, crosses and recrosses his legs, twists his head this way and that. Persons belonging to these and other metabolic types consume widely different amounts of energy, differences not shown by comparison of their basal metabolic rate and

generally unappreciated because there are no easy means of measuring total caloric expenditure. Hence, it becomes obvious that food consumption is by no means the measure of food requirement in persons of different weight. Persons of the same height and age, following similar occupations, eating food of caloric equivalence, may be of widely different weight.

These considerations as well as incomplete scientific observation during the last seventy-five years have led to the conception that body weight in health is determined by the difference between the calories contained in ingested food and those expended in the total of the life processes. There is today more uniform acceptance of the thesis that obesity is primarily the result of excessive food consumption than was the case five or ten years ago when the endocrine explanation was so widely invoked. It is a matter of general opinion that the chronic uncomplicated case of malnutrition is to be treated by increasing food consumption and decreasing energy expenditure. The latter is relatively simple, the former quite difficult. Through long continued poor habit formation the malnourished person is actually confronted with an all but impossible task when asked to eat more. Various stomachics have been invoked to stimulate appetite. More recently, insulin has been used with some success. On the assumption that the malnourished person is lacking in growth hormone, anterior pituitary extracts have been used; in two cases I have found them quite unsuccessful.*

I have preferred to treat the problem of uncomplicated malnutrition as one of a bad eating habit. Patients are told at the beginning of treatment that they must learn to eat adequately; that it is their job to take in all the food provided by a high caloric diet list; that medicine will be provided to increase appetite. In some cases, despite the inconvenience of administration, insulin before two or three of the daily meals provides an added impetus to eat; in others, it is seemingly without effect. For some time I have been using a concentrated vitamin B preparation (pulvules vitamin B) to stimulate appetite. In the markedly hyperactive individual intermittent sedation, preferably with barbitol instead of the acne-producing bromides, is useful in reducing energy output. In some patients who after satisfactory initial progress fail to gain further, a quarter grain of thyroid substance two or three times daily may stimulate food ingestion. The physician must at all times be prepared to suggest dietary substitutions of high caloric value which the patient will eat. Constant encouragement and assur-

*Since the preparation of the manuscript, Antuitrin-S produced a distinct augmentation of the weight gain in a patient with menorrhagia.

Table I.

Case	Age	Sex	Weight (Pounds)			Principal Drug Employed	Duration of Treatment (Months)	Total Gain (Pounds)
			Best in Life (previous to treatment)	At Beginning of Treatment	At End of Treatment			
1	33	M	110	103	122½	Insulin	7	19½
4	19	F	90	84½	89¼	B; sedation	1	4¾
7	36	M	175	150	156	B; sedation	1	6
10	14	F	92	85½	101¼	B; sedation; thyroid	5	15¾
13	38	F	112	103¾	118½	Insulin	9	14¾
16	21	F	90	90	108	B; sedation	3	18
Total 16 cases							53	162
Average gain per month 3 pounds; per patient 10 pounds.								

Table 1. The table presents every third case treated. In addition to the medication indicated (B: pulvules vitamin B) each patient was encouraged to eat a high caloric, high carbohydrate diet.

ance on his part are necessary to maintain the wavering purpose of the easily discouraged malnourished person.

During the last two years sixteen ambulatory persons of both sexes ranging in age from 6 to 59 years have been caused to gain 162 pounds in 53 months, an average of 10 pounds per person, and a little over three pounds per month. The gain varied from three quarters of a pound in a patient under treatment for only one month to 18 pounds in a patient under treatment for three months. Had all patients been successfully encouraged to remain under treatment (I estimate 6 months as necessary to gain 20 pounds) the total as well as the average gain would have been much larger. Table 1 summarizes the results.

GENERAL DIETARY INSTRUCTIONS

Each day eat all of the food indicated in the following list, dividing it into meals to accord with your usual habits of eating. Do not eat between meals but do take a snack at bedtime. In addition to the food listed you may eat whatever you desire.

Bread.—Eight slices of bread or toast.

Butter.—Six squares. Jelly, jam, peanut butter, etc., as desired.

Cereals.—Two (later three) servings. Any cooked or raw breakfast cereal except those containing excessive amounts of bran. Rice, spaghetti, macaroni, noodles, dumplings, potatoes.

Eggs.—Two prepared in any manner.

Meat.—One average serving of any meat, fish or fowl.

Milk.—Two glasses with cream which should be increased in amount as tolerated until the mixture is composed of half of each. This should be drunk after the meal.

Vegetables.—One serving of any green vegetable, preferably creamed.

Fruit.—Two servings, listing those of higher

carbohydrate content especially, such as bananas, grapes, plums, etc.

Dessert.—One serving of any sweet dessert.

Other foods which may be taken to advantage.—Those stimulating appetite or of high food value, such as broths, olives, beer, celery, dates, figs, nuts.

Candy.—Only immediately after meals.

The list must be modified to meet the needs and tastes of the individual patient. In case lunch is eaten early and supper late a midafternoon snack is desirable.

SUMMARY

1. Patients with uncomplicated chronic malnutrition are treated to the end that proper habits of adequate eating be developed. A concentrated vitamin B preparation has been helpful in enhancing appetite. A general diet particularly high in carbohydrate content rather than fat has been used.

2. During fifty-three months of treatment sixteen ambulatory patients gained a total of 162 pounds, an average of a little more than three pounds per month and ten pounds per person.

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POLYPOSIS OF COLON

George E. W. Hardy, Tampa, Fla. (Journal A. M. A., March 14, 1936), cites a case in which it is problematic whether the polyposis resulted from a bacillary dysentery or whether the dysentery was merely a complicating factor, secondary to the congenital type of polyposis of the colon. The author is of the opinion that this case was one of polyposis of the colon of the congenital disseminated type, complicated by the bacillary dysentery that confused the picture and postponed the correct diagnosis until too late for relief to be given.

TENDOVAGINITIS (TENOSYNOVITIS)

GENERAL DISCUSSION AND REPORT OF ONE CASE
INVOLVING THE POSTERIOR TIBIAL TENDON

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Nonspecific infectious tenosynovitis or tendovaginitis and related conditions are more frequent and play a greater clinical role than is generally believed. Our knowledge of these processes is incomplete chiefly because ordinarily the good results obtained by therapy obviates opportunities for pathological study. The diagnosis should be easy and usually minor surgery eliminates any annoying residual lesions of a mechanical nature; most frequently a relative or absolute stenosing process. These have been described most frequently about the wrist dorsal carpal ligamentous compartments, but less commonly for the foot. Concerning the lower extremity only stenoses in the region of the peroneal tendons and long extensors of the toes have been mentioned in the past. It is my purpose to discuss tenosynovitis briefly in general and to report one instance of posterior tibial involvement. Operation was performed during the active stages of the disease which offered an opportunity for laboratory investigation. So far as the writer is aware this is the first case of tendovaginitis of the posterior tibial tendon to be reported.

The key to the pathogenesis of this condition lies in the fact that tendon sheaths, joints and bursae are very closely related and represent cavities and fissure formations in mesenchymal tissue. The characteristic tissue lining these cavities is the synovia whose cavity surface is made up of a modified single layer of cellular connective tissue. It is not an epithelial layer therefore in its true sense. This is especially significant for the synovia.

It is not surprising then that systems which have so much in common anatomically and genetically should also be affected simultaneously under pathologic conditions. However its relation to the various forms of rheumatism which might be ascribed as the most frequent affection of both has been infrequently observed. No doubt many of the vague so-called forms of "periartthritis" are more specifically isolated or multiple lesions of the associated synovial structures. The independent pathologic picture of multiple chronic tendovaginitis with participation of the bursa mucosa has however been described by Günther and designated by him as *hygramatosis rheumatica*. There is some available data that chronic rheumatism of the tendon sheath synovia occurs in two differ-

ent forms, viz., a chronic uncharacteristic inflammation and that characterized by a formation of rheumatic nodules such as are found in the corresponding disease of the synovia of the joints. At times the disease may naturally attack the entire synovial structures appearing in the various portions of the system. On the whole, the etiology of chronic nonspecific poly-synovitis is as little known as that of primary chronic arthritis.

From this we must distinguish similar affections which attack only one tendon sheath. Clinically at least the latter conditions are more clear cut and trauma is evidently a factor in their origin. Among these the most commonly known is the phenomena of the snapping finger. Kocher and his pupil de Quervain were the first to describe the most frequent localization of stenoses of tendon sheaths, namely, that of the abductor pollicis brevis in the region of the styloid process of the radius.

Isolated lesions are characterized by strictly localized areas of spontaneous pain aggravated by touch or motions, radiating neuralgias, nocturnal pain, functional disturbances and circumscribed thickening of the tendon sheaths with or without local signs of inflammation. These lesions of the tendon sheaths are then of traumatic and infectious or systemic origin, and have been described as occurring in pyogenic infection, gonorrhea, tuberculosis, syphilis and gout. The tendons most commonly affected have been those subjected to excessive use at points where the tendons are crossed by supporting ligaments. But even in these forms it is generally conceded that basically some toxic or infectious factor participates.

The residual mechanical traumatization of the sheath produces a histologic picture properly termed "deforming tendovaginitis." The pathologic changes are analogous to those found in chronic bursitis and deforming arthritis and fibrillary cartilage may even develop in the tendon sheaths affected.

On the basis of blood borne infection the lesion may be initially primary or secondarily metastatic after one or more infectious foci have already been established. The process may also begin by a direct infection introduced from the outside or by extension from a neighboring lesion. Not infrequently during the bacteremic phases of hematogenous osteomyelitis there occur self limited inflammatory localizations about the joints, either single or multiple, which usually subside spontaneously. These have been considered for the most part to be nonsuppurative bony metastases. I believe that in some of these isolated tendon sheaths are actually the seat of involvement rather than the bones or joints. In this connec-

tion it is well to remember that metastatic osseous and periosteal foci do often subside spontaneously in the course of pyogenic osteomyelitis. The following case illustrates the importance and difficulties in making a differential diagnosis.

REPORT OF CASE

In a boy of 8 years the onset of pain occurred insidiously in the ankle and hip several weeks before observation. Examination revealed slight infiltration and tenderness in the region of the posterior tibial tendon which lead to a diagnosis of tendovaginitis. A localized osteomyelitic focus of the ilium was drained at this time with no particular therapeutic attention directed to the ankle. The clinical symptoms referable to the ankle continued over a period of two years after which time the lower end of the tibia was explored upon the mistaken diagnosis of Brodie's abscess. The bone was slightly sclerotic but otherwise negative on bacteriologic and histologic study. This was no doubt an instance of primary tendovaginitis of the posterior tibial tendon with secondary reaction in the contiguous bony malleolus. Such bony changes may overshadow the initial tendovaginal pathology.

The differential diagnosis involves a careful consideration of the surrounding soft and bony structures. The nocturnal pain of tendovaginitis simulates osteocopic pain closely. This plus the secondary adjacent bony changes as depicted on roentgen ray examination is very misleading as illustrated in the case to be reported in detail. However a careful examination should point to the synovial character of the pathological condition. Collateral osseous changes about the tibia are periosteal thickening and proliferation, atrophy of the bone during the active stages of the inflammation which may be followed by a sclerosing reaction much later. Following participation of the periosteal and bony structures the differential diagnosis becomes increasingly difficult.

Rest plays an important part in the treatment because of the damaging role that trauma and overexertion plays. A noticeable improvement usually results from immobilization or minimal function. Drainage is indicated when frank suppuration is manifest. In the chronic progressive forms antirheumatic treatment has been of little avail. Operative treatment is always indicated whenever and wherever the swellings are troublesome for cosmetic or mechanical reasons. The sheath may be opened, excised (and reconstructed if necessary from neighboring tissues or fascia) or a tendoplasty performed, as was indicated in my case. A period of rest and physiotherapy and mechanical support should follow, especially in the weight-bearing extremities. Perhaps some of the newer forms of physiotherapy will yield better results in the future along more conservative lines. The residual mechanical disabilities will

remain surgical problems. Of the total material numbering forty-six cases collected by one author twenty-three required operation.

REPORT OF CASE

The patient, a white married female aged 48, who was first seen on March 12, 1935. Her chief complaint was pain in the right ankle of one and one-half years' duration. The onset was insidious and not antedated by trauma. The pain was aggravated by weather changes and walking on rough ground. The ankle becomes stiff with inactivity but limbers up quite readily after some functional use. No other joint trouble and general condition was good. Condition has been stationary for some time.

General examination revealed a well developed and well nourished adult white, female of stated age. Both feet are in moderate valgus on standing, but nothing of note was further observed in the left foot and ankle. The right ankle revealed a definite tenderness and some infiltration behind and below the medial malleolus over the posterior tibial tendon. Stethoscopic auscultation revealed definite moist crepitation over the tendon site on movement of the ankle which is absent on the unaffected side. Pain is experienced in this region when the posterior tibial tendon is put on a stretch and when it is actively contracted. The roentgen ray examination was essentially negative for bony pathology except for slight soft tissue swelling about the medial malleolus. A diagnosis of tendovaginitis of the posterior tibial tendon was made and operative exploration suggested. The patient preferred to defer operation.

She returned three months later. The condition had become worse and she now complained of nocturnal pain of a boring character in the medial malleolus. There was now more pronounced swelling, redness and pain about the retromalleolar region accompanied by edema and tenderness over the malleolus proper. The white blood count was 9200. The roentgen ray now showed definite periosteal proliferation, marked localized bony atrophy and suggestive destruction of the medial malleolus. Because a primary or secondary low grade bone infection was now suspected operative exploration was accepted.

A curved incision was made behind the medial malleolus. The skin and subcutaneous tissues were edematous. The sheath of the posterior tibial tendon was $\frac{3}{4}$ inch thick at its lower margins and was incised upward for about 5 inches and some dirty looking amber colored fluid escaped. The synovial lining was heavily injected, somewhat lustreless and filled with a glairy exudate. The tendon itself was particularly striking. The retromalleolar portion was enlarged to the size of an adult thumb and bulged out of its groove. It was rather boggy and of a dirty yellowish color suggesting xanthomatous changes. It was quite evident that the primary pathology was tendovaginal but the periosteum over the malleolus was stripped and a small specimen of bone secured in order definitely to rule out any bony pathology.

The synovial sac was gently cleansed with iodine. A long wedge of the retromalleolar portion of the tendon was resected and the remaining edges sutured in order to decrease its size. The sheath was also closed as was the rest of the wound in layers. A cast was applied with the foot in the neutral position. She made an uneventful postoperative recovery and the wound healed by primary intention. A brace was applied about one month later supported by physiotherapy and active motion. Retromalleolar swelling and tenderness persisted for about six weeks after operation.

Three months later the patient was objectively and subjectively symptom free and has remained so.

Laboratory examination.—Wassermann, negative.

Bacteriology.—The fluid from the tendon sheath was cultured and yielded nonhemolytic gram positive cocci in chains.

Histology.—Sections of tendon in longitudinal strips show no marked change, but another portion cut in transsection shows diffuse hydrops and a tendency toward myxomucinous degeneration which is pronounced at one point near the tendon periphery associated with some hemorrhagic extravasation. At this point the myxomatous surface tissue is stripped off the underlying tendon fiber bundles. Lateral to this the surface tissue exhibits a tendency toward hyalinization which also occurs in some of the tendon bundles. Inflammatory cells are not present except for an occasional endothelial cell.

The tendon sheath consists of loose edematous longitudinal and circular strands of delicate tissue and a loose inner layer of mesoblastic connective tissue and a few surface endothelial cells. The mesoblastic layer shows growth activity indicated by occasional mitosis. The surface tissues are pervaded by scattered poorly defined endothelials and plasma cells, lymphocytes and a rare polymorphonuclear cell. A second portion of synovia is without supporting fibrous tissue and shows marked edema and mesoblastic activity, a vascular subserosa, with leukocytic infiltration.

Osseous tissue does not appear remarkable. No malignancy nor evidence of syphilis or tuberculosis were noted.

Pathological Diagnosis.—Chronic tenosynovitis.

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ACUTE MASTOIDITIS INCLUDING INDICATIONS FOR OPERATION

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For hundreds and even thousands of years mastoiditis has been the subject of keen observation and profound knowledge. Many present-day observations and discoveries are remarkable for this antiquity. Twenty-four hundred years ago Hippocrates wrote that "acute pain in the ear with strong fever was to be dreaded for there is danger that the man may become delirious and die. . . . Younger persons die of this disease on the seventh day or still earlier, but old persons much later. . . . In the later periods of life relapses of the disease coming on generally prove fatal." Celsus, two thousand years ago, observed, "If the discoloration in the mastoid extends right through the bone it must be excised and all disease must be extirpated. . . . Cauterization is useless. . . . Excision is imperative." As early as 1740 the first successful mastoidectomy was performed by the French surgeon, John Louis Petit, who said, "We ought not to wait until the pus has destroyed the bone for the patient is always in

danger, not only because of the pus which does not escape but because of the accidents that may supervene and render the disease infinitely complicated and fatal." Even before 1863 the anatomy of the mastoid was well known, but Schwartze in that year was the first to establish drainage through the mastoid by the antrum route.

Although we have been repeating ourselves for hundreds of years, it is well to attempt to discuss a few points that I feel should be emphasized in our present knowledge of mastoiditis and mastoidectomies in children and adults. While mastoiditis is seen in all periods of life yet we must realize that each period has its own peculiar type of ear trouble. In old age particularly we encounter progressive deafness produced by insidious degeneration of the acoustic nerve. In middle life we see mostly progressive deafness as a result of fixation of the sound conducting mechanism. In childhood the ears are more seriously menaced than during any other period of life not only because of congenital deafness resulting from developmental anomalies, but, because of the frequency of acute and chronic middle ear infections with their sequelae involving the mastoid.

To appreciate fully the clinical problems of mastoiditis in childhood one must have clearly in mind the anatomic differences between the temporal bone of the child and that of the adult. For example, the absence of pneumatization of the mastoid process excludes the possibility of the development of mastoiditis as understood in the adult. In the young child there can be no development of a focus of infection in the depths of the process obscured from detection because of a thick bony covering as in adults. Because of a patulous petrosquamosal suture passing directly through the outer wall of the antrum (the only pneumatic cell back of the auricle) the clinical significance of a swelling back of the ear occurring at the onset of the otitis media is the same as that which is attached to the bulging of the drum membrane and is not at all of the same importance as when this condition develops in adults. Often in a young child a reaction of this sort subsides promptly after the drum membrane has been perforated. Again, the petrosquamosal suture passing through the tegmen permits the extension of infection from the middle ear to the middle fossa of the brain more readily in a young child than in an adult. Here symptoms of manifest meningitis occurring during the early stages of otitis media will often disappear as promptly as does the swelling behind the ear simply by establishing drainage through the drum. Since there is no mastoid process in an infant and no mastoid cells in a young child to

conceal a dangerous focus of infection, one should be more tolerant of a persistent elevation of temperature than one might dare to be in an older person with a fully developed mastoid. On the other hand, the seriousness of the existence of mastoid disease associated with gastro-intestinal symptoms in infants deserves our most serious consideration because of the disproportion of ear and mastoid findings to the symptoms of the gastro-enteritis. In many of these cases, even though the drum membrane and mastoid seemingly appear normal, one often finds following paracentesis that a gray bead of mucopus or frank pus from the middle ear cavity, or at operation, there is discovered a definite suppurative process in the mastoid which on microscopical examination of the curettings shows two types of pathology; namely, edema of the mucosa and cells or a fibrosis; and in advanced cases true bone necrosis. Analysis has shown that more deaths occurred in this edematous type of mastoid when the "vomiting diarrhea complex" was present. Many observers feel that in infants with middle ear and mastoid infection the gastro-intestinal and general symptoms are quite characteristic, and that if the symptoms do not subside after a myringotomy a mastoidectomy should be done.

As the mastoid process develops the problems of mastoid diagnosis and operative technic multiply. No hard-and-fast rules can be devised either for the necessity of an operation or for the opportune time but certainly one important factor in the successful outcome of a mastoidectomy must not be overlooked; namely, the opportune time for the operation. Each case presents an individual problem. We must recognize the conditions which add to the dangers of the case; the appearance of the patient and his reaction to the infection; the influence of age; the peculiarities of anatomical formation, such as the presence or absence of sclerosis; the type of bone and pain; the position of the lateral sinus; the relation of the point of greatest bone destruction to important structures; the influence of previous attacks; the characteristic reaction of certain organisms; the significance of the blood examination; the presence of renal disease or diabetes. We should visualize the pathological conditions present at the time of our examination from a study of the whole picture and should not be deceived by any of our findings, even including the roentgen ray. We should wait for any reasonable chance for the mastoid inflammation to become localized before operating. But our final decision depends on our clinical experience, judgment and sometimes intuition.

In a developed mastoid process the symptoms

and signs of mastoiditis unfold themselves usually in logical sequence, but the time of their appearance often baffles the keenest observers. This is due not only to the virulence of the infection but to the reaction of the bony and mucosal mastoid structures to the extension of the mastoid infection. The intense constitutional reaction to mastoiditis as so often graphically shown on the temperature chart and in the Schilling test is not difficult to realize when we consider the extreme vascularity of the mucosa and bone of the mastoid containing delicate walled type of vessels, an ideal medium for rapid and extensive absorption of toxins. This also explains the rapid recovery after the pus and infected mucosa and bone have been removed and this vascular area completely eradicated. However, masking of the symptoms and signs of mastoiditis often occurs because of the bony development of the mastoid and the adjacent structures. For example, a mature mastoiditis in which there is an unusually thick mastoid cortex may exist without a postauricular abscess or even tenderness, except possibly on pressure over the mastoid attachment of the sternomastoid muscle or to the occipital side of the mastoid tip. Again, a nondiploetic mastoid may contain pus burrowing so deep along the posterior surface of the external canal wall toward the attachment of the digastric muscle (Bezold's mastoiditis) that no mastoid symptoms or signs (except possibly a deep muscle soreness referred to the fauces and retropharynx) are present. I have seen cases of this sort even with negative roentgen ray findings.

The weak point in the treatment of mastoiditis by surgical drainage is the lack of assurance that the operator has reached all the infected cells in the mastoid, about the ear and in the petrous bone. In simple mastoidectomy little attempt is made to remove all the cells in the neighborhood of the eustachian tube, on the anterior or inferior walls of the middle ear or these cells which lie internal or anterior to the attic. Usually the operator is satisfied with opening the accessible cells in the mastoid and relies upon the drainage of these to cure the mastoiditis. Again I have seen, for example, mastoidectomies fail because a large infected cell in the neighborhood of the antrum, situated on the posterior side of the fallopian canal and burrowing deep under the facial nerve, was not drained because of the fear of injuring the facial nerve. Fortunately, most infections at these points clear up even though only proper drainage is established through the antrum.

When a mastoidectomy is followed by a chronic purulent otitis media it must be explained by a lack of complete cellular drainage either in the mastoid or adjacent structures, and

the surgeon should be on the alert for symptoms and signs of a petrositis. While exenterating cells around the semicircular canals or along the dural plate of the posterior fossa, we not infrequently encounter sinuses leading to abscesses through which a probe passes to dangerous depths. The sinuses are enlarged and drained as thoroughly as possible and the patient usually recovers. In a mastoidectomy followed by a persistent purulent discharge from the external auditory canal and a sixth nerve paralysis, the wound was reopened and nothing was found; the discharge from the middle ear continued for a time, then ceased; and the patient recovered. On the other hand, the mastoid wound has healed completely, yet the patient has died of a fulminating meningitis weeks or months later. If we are to prevent or to cure a petrositis at the time of mastoidectomy, it is essential to eliminate the cells above and internal to the antrum, as drainage from the petrous bone and middle ear is obtained from this area. Cells around the semicircular canals and those extending along the dural plate of the posterior fossa should be carefully followed, because infection along the former leads to abscesses within the petrous bone, while the latter cells lead to abscesses along the posterior surface of the petrous bone. Finally, those cells which lie between the descending limb of the sinus and facial nerve should be carefully searched for and eliminated, because they in turn may lead to a collection of larger cells internal to the sinus, between it and the jugular bulb. This point is favorable to abscess formation because of its restricted outlet between the sinus and facial canal on the under surface of the petrous pyramid. Careful drainage of cells in these areas should be successful in establishing drainage beyond the confines of the mastoid.

Decision as to the opportune time to perform a mastoidectomy is of the utmost importance. This requires the keenest judgment and when rightly exercised lessens the possibility of needless operation, reduces the number of complications and paves the way for a smooth convalescence. The least favorable time to operate is during the time of acute invasion of the mastoid. Nature has not yet had time to throw out her barriers and to wall off the infection. Operations during this period show more reaction, convalescence is less smooth, the wound does not heal so well and complications are more frequent. While in some cases complications may be due to the severity of the infection or poor general resistance, we cannot doubt that in others they are caused by the trauma at operation opening channels of extension to further infection. A comparison of the number of complications occurring spontaneously during

the first few days of a mastoiditis with those which follow mastoidectomy performed in the first few days of an infected mastoid would show a greater number in the cases operated on. However, where there is a history of repeated mastoid involvement, the more recent the previous attack the earlier is operation justified.

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NEW METHOD FOR REDUCTION AND RETENTION OF CENTRAL DISLOCATIONS OF HIP AND OF FRACTURES OF THE ACETABULUM WITH DISPLACEMENT

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The following is a report of a case of fracture through the acetabulum with marked displacement and a brief report of the author's method of reduction and retention.

REPORT OF CASE

Case 1. Mrs. E. D. M., a stout, short woman aged about 45 was admitted to Research Hospital on January 20, 1935, and had been under the care of Dr. H. O. Leinhardt for six days when the author saw her in consultation. She had been in an auto wreck in which she had been subjected to the compressing force of a passenger on either side of her in the rear seat of a sedan. The violence was sufficient to dislocate her left hip and to fracture her pelvic rim through the acetabulum on the right side (fig. 1).

By means of skeletal traction upon a Böhler splint a large degree of reduction was obtained and considerable comfort had been afforded (fig. 2).

In consultation with Dr. Leinhardt it was decided to apply traction in the line of the femoral neck by means of an apparatus designed by the author which had al-



Fig. 1. Condition on admission to service of Dr. H. O. Lienhardt at Research Hospital, e. g., fracture of the right pelvic girdle with marked central displacement of acetabulum and dislocation of left hip.

From the Fracture Service of the Research Hospital.



Fig. 2. Reduction accomplished in four days by skeletal traction on a Böhler frame.



Fig. 5. Skeleton as rigged by the author in 1932 preliminary to use of the method.



Fig. 3. Almost perfect reduction by traction in line of the femoral neck by means of Kirschner wire passed through trochanteric area of femur.



Fig. 6. A case of intracapsular fracture of right hip in elderly patient with typical displacement.

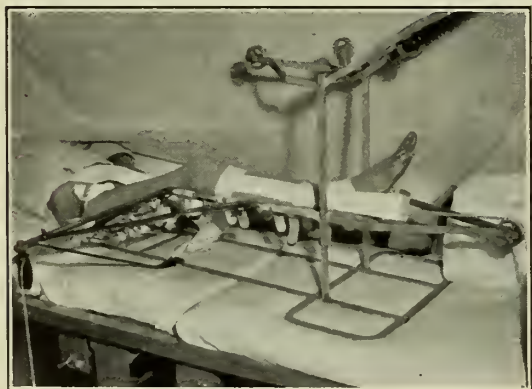


Fig. 4. One of the author's patients in whom trochanteric traction was applied for reduction of fracture of the neck of the femur. (Foot support had just been removed prior to photography.) Note the type of adjustable outrigger with pulley which may be clamped onto either side of Böhler frame for reduction of fractures of hip or pelvis.



Fig. 7. Same case as figure 6 showing reduction by means of Kirschner wire passed through trochanter and traction exerted in line of neck of femur. The traction bow and attached wire are shown incorporated in spica cast of pelvis and thigh. Counter pressure points during application of cast are the pelvic brim on the affected side and the inner aspect of the unaffected thigh where a knee length cast is applied. If for any reason it should be desirable to apply cast in cases such as that illustrated in figure 1, this procedure should be eminently useful.



Fig. 8. Author's forceps, opened and closed, to guide the Kirschner wire in fat or muscular patients where the bony part to be perforated is deeply situated. The closed, tubular end of the forceps should be inserted through a small skin puncture under surgical precautions, the Kirschner drill wire threaded and guided into position. On completion of the passage of the wire the forceps is withdrawn and unclamped.

ready been used to reduce intracapsular fracture of the hip. With what success our efforts were rewarded may readily be seen by a glance at the roentgenogram made on January 26 (fig. 3). The patient was maintained in the position shown in figure 4. The union of the fragments proceeded uneventfully and no shortening of the right leg or any disability of the hip resulted. Word from Dr. Leinhardt in July was to the effect that recovery was complete.

It is felt that with the treatment here outlined we were able to hasten recovery and certainly reduce or eliminate the chance of some crippling aftermath.

A word as to principle and technic might be well at this point since this plan of attack upon fractures of this sort is entirely original and is the outgrowth of a short experience with intracapsular hip fracture.

In 1932 the author had a skeleton rigged upon a Böhler frame (fig. 5), and proposed the method to members of the orthopedic staff of Kansas City General Hospital as of possible use in certain hip and pelvic fractures. No suitable case was found until 1934 when the author used the technic on a case of intracapsular fracture of the hip of an elderly man in poor physical condition. Instead of using an outrigger attached to the Braun-Böhler frame, the Kirschner wire was passed through the great trochanter, the bow was attached and an assistant made constant traction in the line of the neck of the femur while the pelvis and thigh, with the wire

and bow, were incorporated in plaster of Paris (figs. 6 and 7).

As the hip fracture shown occurred in a frail man the bony landmarks were easily felt and the wire was readily passed through the cortex of the trochanter. In case 1 with the pelvic fracture, however, the large deposits of adipose tissue in the upper thigh and the medial displacement of the bone made passage of the Kirschner wire quite difficult. A general anesthetic was required and several attempts to penetrate the cortex were made before a final satisfactory penetration was affected.

To obviate a similar difficulty in the future the author has had made an instrument (fig. 8) which it is felt will be of material aid. Where the bony point to be perforated with the wire is deeply embedded in fat or muscle, the closed, tubular end of the forceps may be thrust down through a small puncture in the skin and the wire thus given proper direction until adequately engaged or until penetration is complete. When this has been accomplished the instrument may be withdrawn from the wound and unlocked or simply threaded over the free end of the rustless wire after it is disengaged from the drill.

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THE PATHOLOGY OF AIR EMBOLISM: REPORT OF TWO CASES

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The fate of air emboli is dependent primarily upon the site of entrance into the circulatory system. Air aspirated by the systemic veins reaches the right ventricle and is distributed to the pulmonary arteries; while air entering the pulmonary veins is distributed through the systemic arteries by way of the left ventricle. The first type is referred to as venous embolism, the second as arterial embolism.

For almost a century clinical recognition of air in the circulatory system has been reported and, with recent developments of chest surgery and artificial pneumothorax, the interpretation of hitherto unexplained accidents is now accepted on the basis of air embolism. Air is readily aspirated when cut veins are in contact with the atmosphere or with air imprisoned in a closed cavity. Usually such veins are mechanically prevented from closing by the pres-

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Read at the meeting of the Trudeau Club, St. Louis, on October 3, 1935.

ence of dense fibrous adhesions (as in a thickened pleura), or by fascial planes (as in the neck), or by the actual presence of a needle within the lumen of a vessel. Except when air is being forcibly pumped into the vessel, the vein must be of sufficient size to permit the negative venous pressure to suck in air. This occurs during neck operations and during chest surgery where large veins are severed. On the other hand, when air is under pressure, as in a pneumothorax or during insufflation of the urinary bladder or maxillary antrum, the intensified difference of pressure inside and outside the vein favors the aspiration of air by a small cut vein. Thus it is not necessary to have a needle actually within a vein, and it becomes perfectly clear why accidents occur in pneumothorax cases before any air is injected. Puncture of the lung may open both venous and air passages, predisposing to the passage of air from alveoli to veins. The explanation of embolism as the cause of collapse, convulsions and death during thoracentesis is more logical than the consideration of pleural shock, pleural epilepsy, etc.

Animals differ in their susceptibility to venous air embolism. Dogs are relatively immune, unless high amounts are injected rapidly. Rabbits die quickly after injections of 10 cc. into the ear vein. Differences in the rate of diffusion and absorption of the air from the blood stream probably account for this variation in vulnerability and for the conflicting experimental data that has been accumulated.

Venous air embolism in man produces dyspnea, cyanosis, convulsions and often death. No agreement about the mechanism of injury exists. Several outstanding theories should be considered here: (1) cardiac standstill; (2) poor blood aeration; (3) pulmonary embolism; (4) cerebral embolism.

Cardiac standstill, according to Kleinschmidt,¹ results from injury to the heart muscle which air causes by its presence as a foreign body. Brauer² thought standstill was brought about by reflex action through the vagus nerve. Because it is possible to auscult murmurs over the heart following embolism many have regarded this as a sign that the tricuspid valve cannot close. As a result, the air is churned with the blood in the right auricle and becomes stagnant in the venae cavae. Wolf³ stated that the air blocked the lung capillaries, straining the right ventricle to failure and standstill. These theories have as yet little experimental evidence to sustain them. The presence of air in the pulmonary arterial tree certainly points definitely against primary cardiac standstill.

Interference with aeration of pulmonary blood undoubtedly occurs, but not because air

bubbles obstruct the capillaries. In the first place, the capillary bed is too vast to be obstructed sufficiently to produce symptoms. In addition, experiments have failed to demonstrate air in capillaries. Chase,⁴ in his experiments, indicates that air in the mesenteric arteries does not pass beyond the smaller arterial branches. Bergstrand,⁵ however, contends that the speed with which the blood is forced through the lung renders it insufficiently oxygenated. This is due to the tremendous rise in blood pressure of the pulmonary vessels.

Jehn and Naegeli⁶ and Bergstrand have studied the changes which occur in pulmonary and arterial pressures. Manometers placed within the right ventricle and the carotid arteries indicate the tremendous rise in the pressure of the former and the fall to zero in the latter. Haselhorst⁷ summarizes his observations following experimental venous air embolism in dogs as follows: The increased pressure in the right ventricle forces the air into the pulmonary arteries. Large bubbles block the larger and smaller branches of the pulmonary arteries, and the larger the bubbles the more complete the obstruction. The size of the bubbles depends upon the amount of air in the heart and the force of the cardiac contraction. Small quantities of air are quickly churned into small bubbles, while the mixing is less complete when the amount of air is large. Following the pulmonary artery obstruction, there is a fall in systemic pressure and a stasis in the venous system. If the right heart cannot overcome the pulmonary resistance no blood reaches the left ventricle, thus interfering with the nutrition of the heart itself and of the central nervous system. Thus death when it occurs is due primarily to a pulmonary artery obstruction.

The occurrence of cerebral emboli following venous air embolism is unlikely unless a patent foramen ovale exists, shunting the air around the lungs. The weight of evidence is against the passage of air through capillaries into the venous system. Air is either trapped in small arteries or is absorbed before it reaches the arterioles. Neurological symptoms occurring in the course of venous air embolism can be explained very adequately by the cerebral anoxemia which follows permanent or temporary occlusion of the pulmonary arteries.

The following case report is illustrative of such a situation:

REPORT OF CASE

Case 1. A 34 year old woman was admitted to the nose and throat service of the Jewish Hospital for irrigation of the maxillary antrum. The past history was of interest in that there had been a recent operation for exophthalmic goiter. More recently, the patient had been involved in an automobile accident, increasing the

nervous tension which usually affected her. On June 12, 1934, at 1:30 p. m., under light gas anesthesia, the right antrum was penetrated with a lumbar puncture needle and irrigated with six ounces of physiological saline, followed by an insufflation with air. No resistance was met at any time and no untoward symptoms occurred until after this manipulation was stopped. The patient suddenly lost consciousness and became cyanotic. Stimulants and oxygen were administered. The patient was restless, the pulse imperceptible. Pupillary inequalities were present and both pupils were fixed to light. The Babinski sign was elicited on the left, the Hoffman's on the right. Within an hour the picture of collapse had disappeared. The pulse rate was 80 per minute, the blood pressure 120/80. Cyanosis was no longer present; pupils were equal and reactive to light; the eyegrounds were normal. The patient could talk, but was irrational and extremely irritable, jumping at the slightest noise, clenching her teeth and exhibiting a risus sardonicus from time to time. She became progressively restless and unresponsive. The restlessness consisted of slow clonic movements of the right extremities while the left extremities were spastic. There was evidence of a left lower facial weakness. Pathological plantar reflexes on the left, absent abdominal reflexes on the left and the development of left-sided hyperreflexia, together with a left motor weakness and spasticity, pointed to a lesion in the right pyramidal pathways. The following day the temperature rose to 103 degrees (rectal) and remained elevated for several days together with the neurological signs. The spinal fluid was normal. On June 16, 1934, the patient showed the first signs of improvement of the neurological condition. She was more alert, less confused, more easily managed. The association memory was returning and the motor weakness was decreased. The improvement was progressive, permitting her discharge from the hospital a week after the accident without sequelae of any sort.

ARTERIAL AIR EMBOLISM

Arterial air embolism occurs only when air enters the pulmonary veins and is carried to the left ventricle. Its frequent occurrence during pleural air injections and during chest surgery has stimulated the interest of everyone interested in pulmonary diseases. Mechanisms by which air may enter the pulmonary veins have been mentioned. Rukstinat and LeCount⁸ have been able to produce pulmonary air embolism by increasing the intrapulmonic pressure. The striking symptoms of arterial air embolism have been its focal effects. Many observers have reported the occurrence of localized blanches skin areas, surrounded by a zone of hyperemia. Wever⁹ reported the appearance of air in retinal arteries. Bergstrand reports that arterial embolism is followed by localized cerebral symptoms, increase in aortic pressure, dyspnea, coma, respiratory spasm, convulsions, blindness, abnormal oscillations in blood pressure and other cerebral symptoms. These are due to focal cerebral anemia. The high pressure is due to disturbances in the medullary vasomotor center, while death follows injury of the respiratory center. Reyer and Kohl¹⁰ in reporting 10 cases,

5 of which died, state they had not encountered coronary air emboli, but Rukstinat and LeCount observed coronary air embolism in every instance of their experimentally produced arterial air emboli.

Chase studied the fate of air injected into the arterial bed of the mesentery in rabbits. He was able to follow the changes in vivo in a physiological preparation of the vascular bed. In no instance did the air reach farther than the mesenteric arterioles. The capillaries and venules were persistently free. Air in the muscular arteries had two effects upon them. A vasoconstriction, extending to the terminal bed, followed by a vasodilatation, resulted in hyperemia of the vascular bed. The mechanical effect of air in the vessel was to slow the arterial stream, lowering the pressure in the terminal segments to zero. The result was a regurgitation of blood from the larger to the smaller veins, and was followed by diapedesis of focal punctate masses of blood around the capillaries and veins. This explains the histological appearances of the brain observed by Chase in an autopsied case. Columns of air moved slowly peripherally in the muscular arteries, resisted by the peripheral arterial tension and the surface tension. At branchings of the vessel, the columns broke into smaller bubbles, though often a column straddles a bifurcation, blocking the vessel entirely. The red cells separated rapidly from the serum, and if they agglutinated, trapped the air and permanently blocked the artery. On the other hand, the periphery of the air column was often noted to disappear, apparently by diffusion, and with the diffusion of the entire bubble the blood movement was rapidly resumed through the arteriole and its terminals.

The following case report is representative of arterial air embolus:

REPORT OF CASE

Case 2. A 39 year old woman was admitted to the Mount St. Rose Sanatorium in St. Louis for pulmonary tuberculosis, on December 28, 1934. She was known to have been in the state sanatorium for the same condition twice since May 1, 1930. In June, 1930, a phrenectomy was performed. The sputum was persistently positive and thoracoplasty was considered.

Physical examination on admission to Mount St. Rose Sanatorium showed that all disease was confined to the chest. Resonance was normal to percussion on the left, while percussion of the right chest was dull from apex to base. Coarse rales were heard on coughing over the entire right and amphoric breathing in the apex. No rales were present on the left. At conference on January 15, 1935, it was decided that a diagnostic pneumothorax should be attempted.

At 10:50 a. m., January 19, 1935, a short beveled, 18 gauge, 1½ inch needle was inserted after novocain infiltration anesthesia into the third interspace, 1½ inches to right of spine. Vesicular breath sounds were previously heard over this area. The needle was deeply

inserted and as it was withdrawn a reading of minus 2 cm. was obtained. About 20 cc. of air were given and a reading of minus $1\frac{1}{2}$ cm. was obtained. Another small amount of air was given. The patient appeared slightly faint and the needle was withdrawn filled with blood. The foot of the table was immediately elevated and the patient revived slightly. Then respirations became very shallow and the heart slowed down to about 5 per minute. Carbon dioxide, oxygen inhalation was instituted; respiration improved, and the pupils which had been widely dilated began to contract. Intravenous injections of caffein and metrazol raised the pulse to 60, and 50 cc. of 50 per cent glucose were given into the jugular vein. Her condition improved until 11:25 when respirations and heart rate began to slow and ceased at 11:30. Intravenous and intracardiac injections of metrazol, adrenalin and caffein, and artificial respiration with carbon dioxide, oxygen mixtures for 30 minutes produced no effect.

POSTMORTEM EXAMINATION

The body was that of a white female, age 39, moderately undernourished. The external examination showed nothing unusual. The skin was pale and somewhat cyanotic. The autopsy was done within three hours after death; rigor mortis had not yet occurred. Dissection was made posteriorly along the right costovertebral line to inspect the pleura and the site of the air injection. The right pleura was densely adherent, except posteriorly at the third intercostal space near the costovertebral junction. Here a very small pocket was present, and had apparently been penetrated by the thoracentesis needle. The lung also showed a needle puncture. The left pleura was adherent only at the apex.

The right diaphragm reached the level of the third intercostal space anteriorly, partially compressing the lower lobe. The remainder of the lung was also consolidated. An abscess cavity about 5 cm. in diameter, surrounded by numerous smaller cavities, was present in the lower lobe. The intervening tissue showed a tuberculous pneumonia. A purulent exudate filled the bronchi.

The pericardial cavity contained about 50 cc. of a slightly blood-tinged fluid, the result of intracardiac medication. The heart was of average size, containing unusually bright red unclotted blood in all chambers. In the left auricle and ventricle it was foamy, and small air bubbles in blood were observed clinging to the aorta and aortic cusps, near the orifices of the coronary arteries. The coronary arteries contained unusually large columns of air separated by unclotted blood droplets. Some air was present in the veins, but not nearly as much as in the arteries.

The remainder of the examination was unnoteworthy except for the escape of foamy blood from the cut surface of the liver and kidney. The brain did not show unusual amount

of air in the cerebral vessels. The diagnosis was established as air embolism to the left auricle and ventricle, coronary arteries and systemic arterial circulation.

SUMMARY

Two cases of air embolism are presented. One is a case of venous air embolism which survived after manifestation of cerebral symptoms presumed to be due to anoxemia following pulmonary artery occlusion. The second case was examined at autopsy and demonstrated that death was due to coronary artery air embolism.

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BRONCHOSCOPY: A DIAGNOSTIC AID

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In considering this subject we shall confine ourselves to the part that the bronchoscopic examination might play in making an original diagnosis or in the completion of a clinical picture. The attitude that one might take toward a laparotomy might also be taken toward a diagnostic bronchoscopy. In other words, frequently there are rather definite expectations as a result of previous studies which might be more conclusively established by such an examination or operation. For example, a comparison may be drawn in performing a bronchoscopy for a carcinoma of the lung and a laparotomy for a carcinoma of the colon. However, not infrequently an exploratory examination is decided to be compatible with good judgment and with the hopes of arriving at a more complete diagnosis. Fortunately, a bronchoscopy can be a very simple and safe procedure with only rare possibilities for trouble. Aneurysm is considered to be the only real contraindication.

We shall briefly discuss the various indications and the manner in which the use of the bronchoscope may help in arriving at a more definite diagnosis.

In the last few years there has been notable development in the field of thoracic surgery. This development has been enhanced by the close cooperation of the bronchoscopist. Examination to show the extent of the lesion and biopsy of suspicious growths are essential. Jackson and Konzelman¹ have obtained positive biopsies in about 75 per cent of their cases of bronchial carcinoma. Roentgenograms may show the shadow of the primary lesion or the secondary changes as a result of obstruction to a part of the tracheobronchial tree. It is the duty of the bronchoscopist to determine which of these conditions is present.

As we all know, foreign bodies in the food and air passages may be present, recognized or unrecognized. If there is the slightest doubt as to a foreign body's presence an examination should be done.

The etiology of lung abscess and drowned lung includes foreign bodies, bronchial stenosis, obstructing granulations and other conditions. Therefore, a diagnostic bronchoscopy should be performed regardless of the hope for therapeutic benefit.

No untoward results have been observed by Myerson² in a series of sixty patients with pulmonary tuberculosis examined by the bronchoscope. These patients were examined because of general indications requiring bronchoscopy. Under this grouping were considered cases of pulmonary tuberculosis presenting obstructive phenomena, hemoptysis of unexplained origin and asthmatic breathing.

Atelectasis or massive collapse of the lung is not an uncommon condition. It may be the result of a growth, stenosis or a foreign body. Under the latter heading mucous plugs may be considered with the resultant pneumonic changes sometimes resembling pneumonia.

The differential diagnosis between a chronic bronchitis and a bronchiectasis often requires a bronchoscopic examination and pneumonography with iodized oil. The aspiration of stagnated secretions is essential before the injection of the opaque oil. In addition, the elimination of such etiological factors of bronchiectasis as foreign bodies, stenoses and neoplasms is a definite indication.

Jackson³ states that bronchial asthma affords a large field for bronchoscopic study. One must keep in mind that many of the persons who wheeze may have a foreign body, narrowed bronchial lumen or some other chronic pathological condition of the chest which might explain their difficult breathing.

Unexplained cough may be the result of tracheal ulceration, a small endobronchial growth or nonobstructing, nonopaque foreign body. Clinical and roentgenographic signs may be ab-

sent yet there is a definite indication for examination.

The larynx, trachea and larger bronchi can be inspected without general anesthesia. According to Tucker,⁴ among the points noted in bronchoscopic examination may be mentioned the appearance of the bronchial mucosa, the quantity and character of secretion, evidence of abnormal mobility, fixation and deviation of trachea and bronchi and, finally, a careful inspection of the bronchial movements during respiration and cough. The presence of bronchial dilatation, compression stenosis, intra-bronchial lesion, growths, ulceration and infiltration can be readily determined.

CONCLUSIONS

1. It is the desire and effort of the bronchoscopist always to confer with the internist, the surgeon and the roentgenologist.
2. Bronchoscopy may play an important part in arriving at a correct diagnosis.
3. In many conditions, positive information can be obtained by no other procedure than by bronchoscopy.

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PAIN IN THE SHOULDER GIRDLE, ARM AND PRECORDIUM DUE TO CERVICAL ARTHRITIS

Samuel S. Hanflig, Boston (*Journal A. M. A.*, Feb. 15, 1936), considers the study and treatment of a group of cases in which, with the exception of one, the outstanding symptom was pain in the vicinity of the shoulder girdle and arm. In these cases, evidence of local disease of the arm and shoulder was absent and the pain was probably a manifestation of irritation or actual inflammation (radiculitis) of cervical spinal nerve roots due to cervical arthritis. In the one excepted case, precordial pain was the outstanding feature and was similarly due to a radiculitis or irritation of nerve roots due to cervical arthritis. It is believed that cases of this type are more frequent than is generally supposed. Their prompt recognition has led in most instances to complete therapeutic relief. The author's discussion is a clinical one with emphasis on diagnosis and treatment, some reference being made to the pathologic process and its correlation with the clinical features. The method of treatment outlined, that of stretching and manipulation with a proper apparatus, has been of value in doubtful cases as a diagnostic test. The recognition of these borderline cases which lie between the confines of neurology and orthopedic surgery is most important if one is to prevent a substantial migration of patients to the cults beyond the realm of medicine.

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APRIL, 1936

EDITORIALS

THE COLUMBIA SESSION—79TH ANNUAL MEETING MISSOURI STATE MEDICAL ASSOCIATION

Columbia was host to the Missouri State Medical Association in 1927 and members who attended that Session are looking forward to the Session this year which will convene in Columbia, April 13, 14 and 15. Columbia has much to offer as a host city and its location in the center of the state makes it readily accessible for all.

The local committees, the program committee, officers and all who have work in preparing for the Session have been diligent in their activity and it is hoped that the Session will prove one of value to a large number of members. Now, more than ever before, does the medical profession need close cooperation of its members and the Annual Session is the one time that members from all parts of the state come together with their problems; it is the desire of those who have a part in the Session that not only problems will be lightened but inspiration will be gained.

Because Missouri is fortunate in being host to the American Medical Association this year which will meet in Kansas City May 11 to 15 the State Association Session will convene for only three days. Reports of committees will be submitted to delegates before the Annual Session as a means of saving time at the meeting and in this way more time be made available for the scientific sessions. The first scientific work will begin Monday afternoon and continue through Tuesday and until 4 o'clock Wednesday when the House of Delegates will hold its second meeting to be followed immediately by the final meeting of the Council.

The Committee on Maternal Welfare will

hold a dinner meeting Monday evening. Individual problems will be presented and Dr. Joseph L. Baer, Chicago, a guest, will discuss these problems. Dr. Baer will address the General Meeting on Tuesday morning.

Dr. Austin A. Hayden, Chicago, will present a motion picture of the headquarters of the American Medical Association. This picture will be presented just preceding an entertainment on Tuesday evening at which the Boone County Medical Society will be host.

The secretaries of component societies will be guests of the Association at a dinner Tuesday evening.

Columbia has several good hotels and satisfactory accommodations should be available for all. In order to facilitate making reservations information and a blank will be found on page 23 of the advertising section of this issue of THE JOURNAL.

The scientific program has been planned to be of practical value to both specialist and general practitioner. The program is not as lengthy this year because of the shorter session and the number of papers to be presented at each session has been decreased to allow time for discussion. The program appears on page 155 of this issue.

THE TREATMENT OF APPENDICITIS

Once appendicitis is diagnosed, so went the teaching of a few years ago, immediate operation is to be insisted upon. The appalling mortality which follows such hit or miss surgery, again recently called to our attention by the magnificent statistical investigation of Reid, Poer and Merrell¹ cannot be allowed to continue. These authors studied nearly 3000 cases over a period of nineteen years. It is true that the average mortality rate was only 6.3 per cent, and for unruptured cases only 0.86 per cent; but for cases with abscess the mortality rate was 11.4 per cent and for those with peritonitis, 33.9 per cent. Since these figures represent the results achieved by 72 different surgeons they may be taken to represent a fair community experience. They do not reflect upon the skill of the surgeon; they reflect seriously upon the method of choice in the management of the seemingly simple case of acute appendicitis. This unnecessary loss of life must be lessened; fortunately the conservative method of treatment in vogue years ago may be used advantageously in properly selected cases.

It is expedient at this time to call attention to the finding of Reid et al that one third of their patients had been given a cathartic for the treatment of abdominal pain. Purgatives definitely

lower the patient's chance of recovery when the true nature of the condition is recognized. Hence the first step which our profession must take in lowering the mortality from complicated types of appendicitis is to institute control over the druggist who ignorantly recommends a laxative for the relief of pain in the stomach and over radio announcements of the same general kind. While we may not hope to bar the variety of stomach remedies trumpeted forth into the air for the relief of every kind of abdominal ailment it would seem that a beginning might be made by the prohibition of statements to the effect that pain will be relieved. For the present we may leave the treatment of gas on the stomach to the radio stars; but we must insist that the relief of pain is entirely the province of the medical profession.

In the second place, we must differentiate between types of appendicitis. The simple acute case without perforation, abscess formation or peritonitis should be immediately operated on. No delay may be allowed between the diagnosis and the incision. There is no place for the expectant treatment of this type of appendicitis. On the other hand, if several hours have elapsed between the onset of pain and the time the patient is first seen, careful examination must be made to determine whether the infection has extended beyond the limits of the appendiceal wall. Fever over 100 degrees, hyperleukocytosis, abdominal distention, evidence of reflex peritoneal irritability, and especially the presence of a mass (which should be searched for by rectal palpation), all give indisputable evidence that the process is no longer simple, acute appendicitis. According to Keyes² the average interval between the first onset of pain and perforation is 60 hours; hence it is to be expected that patients seen after the third day will require conservative treatment. In such cases the expectant method is to be preferred as emphasized years ago by the elder Öchsner.

Orr³ gave a meticulous description of the treatment of appendicitis which has spread beyond the wall of the appendix. The main points in his method of management include absolute bed rest in a modified Fowler position; rest of the intestine by gastric suction, prohibition of rectal instillations, and the free use of morphine; and the introduction of fluid and nourishment by venoclysis or hypodermoclysis. The purpose is to permit self limitation of the infective process until such time as surgery may be used to drain the localized pus. This seems perfectly rational in view of the fact that it is generally considered good surgical practice to await the walling off process before drainage of any abscess is attempted. Only in the case of infants in whom the protective function of the

omentum has not developed and in the aged in whom it has failed is immediate operation indicated in the presence of perforated appendicitis.

In appendicitis there has been much debate as to whether heat or cold should be applied to the abdomen. The authorities quoted here advise the use of heat, either in the form of a light cradle over the abdomen or moist compresses on the abdomen for those cases in which immediate operation is not indicated. While there may be some question as to the ability of heat so administered to reach the intraperitoneal process there can be no question that it is relaxing and soothing to the patient, much more so than cold. The localized peritonitis may subside spontaneously to the extent that the patient may be discharged from the hospital well. In these cases the advisability of later appendectomy must be determined by the good judgment of the individual surgeon. In other cases there is definite abscess formation; at the proper time extraperitoneal drainage of the abscess without appendectomy is indicated. In cases of this type there can be no question but that appendectomy in the course of a few months is to be done.

We believe that the general application of the procedures here advocated in the management of the individual case of acute appendicitis will result in a distinct lowering of the rising mortality rate associated with the disease despite the excellent technical advances of the surgeon. We must learn to distinguish between those cases "too late for the early operation and too early for the late operation" in order that we may take practical advantage of the careful analytical study of Reid.

1. Reid, M. R.; Poer, D. H., and Merrell, P.: A Statistical Study of 2921 Cases of Appendicitis, *J. A. M. A.* **106**:665 (Feb. 29) 1936.

2. Keyes, E. L.: The Mortality from Appendicitis and the Causes of Death Following Appendicitis, *Ann. Surg.* **99**:47, 1934.

3. Orr, T. G.: Treatment of Appendix Abscess, *J. Missouri M. A.* **31**:232, 1934.

IRON THERAPY IN ANEMIA

Modern scientific research sometimes causes the practicing physician to lose sight of time tested therapeutic methods. The introduction of liver and other extracts for the treatment of pernicious anemia has been followed by the appearance of organ residues designed to relieve anemias of other origin. To some extent the iron salts have been forgotten. On the other hand, the increasing use of hypodermic and intramuscular injections has led to a wider use of the iron salts parenterally in the management of secondary anemias. At the same time there have been suggestions that synergists, notably copper, are requisite for the utilization of iron.

Under these circumstances two recent papers by Whipple¹ are significant.

Whipple and his collaborators used dogs kept anemic by repeated bloodletting and measured the hemoglobin regenerating power of iron salts. They found that colloidal iron given intravenously induces quantitative new hemoglobin formation in the ratio of 3 mgs. of iron to 1 gram of hemoglobin. Several years ago Castle² and others found that the dose of parenteral iron necessary to induce this maximum hemoglobin response in human beings was so large as to be followed by severe and at times alarming reactions. Hence the observations of Whipple that iron by mouth will produce an increase in hemoglobin content of dog's blood, even though at a slower rate than when given parenterally, may be taken as experimental corroboration of clinical facts accumulated over a period of many years. Whipple's studies effectively settle the dispute relative to the value of iron in various forms. He found that ferric, ferrous and reduced iron, all are equally effective in relieving the anemia. Food iron, so-called because it is in organic combination with foodstuffs (as in spinach) is no more effective than simple metallic iron. The important factor is not the kind of iron given but the relative amount of the metal itself. These investigations will afford welcome relief to unwilling spinach eaters.

In the dog it takes from two to three months to exhaust the iron reserves of the body. Once this has been done the reserve continues depleted and on a diet poor in iron there is no difficulty in maintaining the anemia. Strangely enough the iron stored in muscles is not lost during such an emergency, nor is its amount increased by iron feeding. The authors suggest that this muscle iron is of importance for the maintenance of the power of motion and that the animal might even die of paralysis if the functional ability of the heart were impaired by loss of its iron content. This is in contrast to the behavior of iron stored in liver, spleen and kidneys. In iron depleted animals colloidal iron injected intravenously is quantitatively returned as iron hemoglobin. With liver feeding the amount of hemoglobin formation is increased in an amount greater than can be expected from its iron content alone. It can hardly be doubted that protein and other substances important to the formation of hemoglobin are thus supplied to the animal.

From the standpoint of the clinician the ob-

servations of Castle already mentioned are of even more importance. He found that the optional dose of iron by mouth for the production of new hemoglobin in anemic adults was 1 gram of metallic iron per day. In the form of iron and ammonium citrate (the drug which he studied) this amounted to 6 grams or approximately 90 grains per day. Such a dose of the drug should result in new hemoglobin formation at the rate of approximately 1 per cent per day. Hence the importance of long continued administration of whatever iron salt may be chosen for treatment. One gram of metallic iron by mouth is equal in effect to 32 mgs. of iron (approximately 0.2 gram of iron and ammonium citrate) in the same form administered parenterally. Such a dosage, however, is extremely unpleasant to the patient and may be accompanied by syncopal manifestations. From the patient's point of view the significance of these experiments is twofold; namely, they remove the necessity in the average case of hypochromic anemia of employing the expensive parenteral preparations as well as the organ residues which have been so highly recommended by some observers. They may even be said to justify the clinical acumen of the physician of an earlier day who found much success in the empiric treatment of secondary anemia by the eradication of infectious and disease processes and the oral administration of a variety of iron salts.

THE LEO LOEB LECTURE

It has been said many times that the degree of civilization shown by various nations is determined by the method they choose to utilize leisure. Not only may leisure allow for increasing acquaintance with the printed records of men but it may also permit a wider personal intercourse between learned persons and lead to great cultural advantage. The Mu Chapter of the Phi Beta Pi Medical Fraternity of the Washington University School of Medicine has recently inaugurated a series of lectures which will mean much to the cultural improvement of the physicians of St. Louis and vicinity. Fittingly, they chose to memorialize the achievements of one of the greatest scientists on the faculty of their university. In naming the lecture the Leo Loeb Lecture they reflect honor upon themselves, upon the university and upon Professor Loeb.

The first lecture, delivered by Professor W. B. Cannon of Harvard University, proved a fascinating presentation of the method of science. It demonstrated the accidents of investigation which through the sagacity of the investigator may be turned to the enlightenment

¹Whipple, G. H., and Robscheit-Robbins, F. S.: Iron and Its Utilization in Experimental Anemia, *Am. J. Med. Sc.* **191**:11, 1936; Hahn, P. F., and Whipple, G. H.: Iron Metabolism, Its Absorption, Storage and Utilization in Experimental Anemia, *Am. J. Med. Sc.* **191**:24, 1936.

²Heath, C. W.; Strauss, M. B., and Castle, W. B.: Quantitative Aspects of Iron Deficiency in Hypochromic Anemia, *J. Clin. Invest.* **11**:1293, 1932.

of mankind. The practicing physician is too well acquainted with the contributions of Professor Cannon to make reiteration here necessary, but the custom of the lectureship will bring increasing advantages to those fortunate enough to attend these yearly meetings. The visit of a savant cannot fail to enrich the minds, to stimulate the efforts and to infuse new courage into the hearts of our own local investigators. To the practicing physician the visitor's personal review of his accomplishments will bring a renewed acquaintance with those fundamental concepts of laboratory science which constitute the basis of modern scientific medicine.

We cannot better close our tribute to Professor Loeb and that magnificent public philanthropy which motivated the Mu Chapter of Phi Beta Pi Fraternity than by quoting from the funeral oration delivered by Paul Bert in honor of Claude Bernard, the greatest experimental physiologist of all time. Bert said: "It is due to his profound genius, to his rich personality, to the grandeur yet simplicity, of the man that fame has sought him out without his taking a step toward it. It is these attributes which have elevated him from the plane of an ordinary vivisectioning physiologist to be the dominating figure of the experimental method. . . . He has shown you by an example whose repetition would not dim his own grandeur that the scientific spirit, the spirit which invites research and cultivates law earns for one public acclaim, a pundit too long reserved for empiricists, a pundit too often determined by caprice and sentiment. No honor would affect Claude Bernard, recipient of so many honors, so deeply as to see himself inspiring a revolution of such type that its benefits to mankind could hardly be foreseen."

We hope that Professor Loeb may have many years of useful life in which to contemplate the spiritual revolution which the establishment of this lecture will bring to our community.

NEWS NOTES

Drs. Quitman U. Newell and O. P. J. Falk, St. Louis, were guests of the Perry (Illinois) County Medical Society at Duquoin, Illinois, February 6. Dr. Newell discussed "The Treatment of Uterine Carcinoma" and Dr. Falk spoke on "The Treatment of Heart Disease."

At the last meeting of the Kansas City Mental Hygiene Society Dr. B. Landis Elliott, Kansas City, was elected president. He succeeds Dr. G. Wilse Robinson, Jr., Kansas City, who has served as president for the last five years. Dr. Marvin L. Bills, Kansas City, was elected vice president.

There is at present a shortage of Medical Reserve Officers and full time contract surgeons in the Missouri-Kansas CCC. Physicians interested may obtain full information by communicating with the District Surgeon, Missouri-Kansas District CCC, Station Hospital, Fort Leavenworth, Kansas.

Drs. Ernest Sachs and Leonard T. Furlow, St. Louis, and Dr. Arthur E. Hertzler, Kansas City, delivered addresses at the seventh annual assembly of the Southeastern Surgical Congress which convened at New Orleans, March 9, 10 and 11. Drs. Sachs and Furlow spoke on "The Occurrence of Convulsions in a Series of Over Seven Hundred Verified Brain Tumors," and Dr. Hertzler's subject was "Differential Diagnosis of the Lymph Tumors of the Neck."

The Committee on Control of Cancer of the Kansas Medical Society is sponsoring a series of meetings from March 30 to April 4 and has invited Missouri physicians to attend. A scientific meeting will be held at 2 in the afternoon and a public meeting at 8 in the evening each day. Speakers at the sessions will be Dr. Charles F. Geschickter, Baltimore, Maryland; Dr. Burton T. Simpson, Buffalo, New York, and Dr. Frank L. Rector, Evanston, Illinois. The schedule of meetings is Chanute, March 30; Wichita, March 31; Dodge City, April 1; Hays, April 2; Salina, April 3, and Topeka, April 4.

The following members responded to invitations of the Postgraduate Committee of the State Association to deliver addresses at recent meetings of the component county medical societies:

The Randolph-Monroe County Medical Society had as its guests at Hannibal on February 7, Drs. Vincent L. Jones and Joseph Glenn, St. Louis. Dr. Jones spoke on "Upper Respiratory Tract Infections." On March 6 Drs. Walter Baumgarten and Fred W. Bailey, St. Louis, were guests of the Randolph-Monroe County Medical Society and delivered addresses on "Hypertension" and "Surgical Care of Gallbladder Disease" respectively.

Dr. M. Pinson Neal and Dr. M. P. Ravenel, Columbia, were guests of the Cape Girardeau County Medical Society at Cape Girardeau on February 10. Dr. Neal spoke on "The Leukocyte Counts and Their Interpretations." Dr. Ravenel discussed "The Physicians' Interest in the Social Security Act."

On March 5 the Six County Medical Society had as its guests at Poplar Bluff Drs. C. Malone Stroud and Joseph A. Bauer, St. Louis. Dr.

Stroud presented "Some Recent Developments in Allergy," and Dr. Bauer spoke on "Nutritional Disorders of Children."

Guest speakers at the postgraduate course on "Neuropsychiatry in General Practice" to be conducted by the staff of the Menninger Clinic, Topeka, Kansas, April 20 to 25, will be Dr. I. S. Wechsler, New York City; Dr. J. W. Kernohan, Rochester, Minnesota; Dr. Frederick P. Moersch, Rochester, Minnesota, and Dr. Harry Wilkins, Oklahoma City.

The final program for the spring conference of the St. Louis Clinics which will be held April 27 to May 2 has been completed. The program will be directed toward meeting the problems of the general practitioner. The newer developments in medicine will be discussed in so far as their practical value is concerned. That there will be a large attendance is indicated by the number of inquiries received. A program and further information are available at the office of the St. Louis Clinics, 3839 Lindell Boulevard, St. Louis.

The ninety-second annual meeting of the American Psychiatric Association will be held in St. Louis, May 4 to 8, with headquarters at the Hotel Jefferson. Dr. George A. Johns, St. Louis, is chairman of the committee on arrangements. Meeting during the session will be the American Psychoanalytic Association on May 4; the American Psychopathological Association on May 5 and the National Association of Private Psychiatric Hospitals will hold a dinner meeting on May 5. Scientific sessions will convene morning and afternoon of each day. The annual dinner will be on Wednesday evening and round table dinners will be held on Thursday evening.

The American Association on Mental Deficiency composed of approximately five hundred educators, psychologists, sociologists and psychiatrists, will hold its sixtieth annual meeting at the Hotel Jefferson, St. Louis, May 1 to 4. The Friday sessions will be devoted to general and sociological aspects of mental deficiency; the Saturday sessions to psychological and educational topics with special stress on educational disabilities, and the Monday sessions will be given over to research activities, medical aspects and administrative problems in mental deficiency. Any person interested in the mentally defective or retarded child is invited to attend the sessions. The complete program may be obtained from the secretary, Dr. Groves B. Smith, Godfrey, Illinois.

The American Therapeutic Society will meet in Kansas City May 8 and 9, just preceding the American Medical Association. Headquarters will be in the Phillips Hotel. Membership in the society is limited to 100 members. Officers of the society are Dr. Ellsworth Smith, St. Louis, president; Dr. Oscar B. Hunter, Washington, D. C., secretary; Dr. Alphonse McMahon, St. Louis, treasurer; Dr. Logan Clendenning, Kansas City, local chairman on arrangements for the 1936 session. A joint session will be held with the Jackson County Medical Society the evening of May 8 at which Drs. Frank Teachenor, Kansas City, and Ellsworth Smith, St. Louis, will preside. All visiting physicians are invited to attend the sessions.

Dr. C. C. Little, New York, managing director of the American Society for the Control of Cancer, was the guest speaker at a dinner given by Dr. Ellis Fischel, St. Louis, March 13. About forty physicians attended the meeting at the University Club. Dr. Little discussed his experiments on mice which he has been conducting for twenty-seven years. Approximately 30,000 mice are kept on hand at the Jackson Memorial Laboratory at Bar Harbor, Maine. Some of the mice are of the hundredth generation. Dr. Little brought out much data on cancer obtained in his experimental work but devoted the greater part of his time to answering questions. He commended the Barnard Free Skin and Cancer Hospital and the activity in Missouri in education on cancer.

An examination for entrance into the Regular Corps of the United States Public Health Service in the grade of assistant surgeon (medical only) is announced to be held April 13, 1936. Applicants must not have passed their thirty-second birthday and must be graduates of reputable medical colleges and have completed at least one year of internship since graduation, or its equivalent. Boards will be appointed in various cities throughout the United States so as to cause as little travel as possible which, if necessary, must be made at the candidate's own expense. The examination will consume about one week's time. Persons desiring permission to take this examination should make request to the Surgeon General, United States Public Health Service, Washington, D. C., for the necessary blanks and other information.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Arlington Chemical Company
Arlico Protein Extracts
Mead Johnson & Co.
Mead's Oleum Percomorphum 50% (Percomorph Liver Oil 50% in Cod Liver Oil)
Mead's Oleum Percomorphum 50% (Percomorph Liver Oil 50% in Cod Liver Oil) in 10-drop (.222 Gm.) Capsules
Mead's Cod Liver Oil Fortified with Percomorph Liver Oil
United States Standard Products Co.
Ampule Solution Procaine with Epinephrine 1 c.c.
The Valentine Company
Solution Liver Extract—Valentine
Robert A. Bernhard
Saf-T-Top Tincture of Merthiolate 1:1000
Diarsenol Co., Inc.
Neodiarsenol 1.8 Gm. Ampoules
Jensen-Salsbery Lab's, Inc.
Botulinus Antitoxin (Human)
Lee Laboratories
Diphtheria Toxoid, Alum Precipitated, Refined
National Drug Co.
Normal Horse Serum 10 c.c. Ampule Vial
Normal Horse Serum 100 c.c. Cylinder with Intravenous Outfit
Sharp & Dohme, Inc.
Dextrose, U. S. P. (d-Glucose), 25 Gm., 50 c.c. Ampoule (Unbuffered)
Dextrose, U. S. P. (d-Glucose), 25 Gm., 50 c.c. Ampoule (Buffered)
United States Standard Products Company
Rabies Vaccine (Killed Virus) Semple (U.S. S. P. Co.) (25 per cent suspension) seven and fourteen vials packages

Books for Leisure Moments

There are many subjects upon which the layman might consult the physician but prefers the advice of some other person who sets himself up as a specialist in the field. Some months ago there appeared a small volume directed to the presentation of a method of care for diseases of the feet. It may be said that it met the need in this important field which had too long been the domain of the self-styled specialist or the shoe salesman. Now comes Dr. Agnes Saville, an English consultant, who presents "The Hair and Scalp" (William Wood & Company, Baltimore) in order that the physician may be better informed on the correction of their diseases. "Women in particular," she says "believe that those regions of the human body belong to the domain of cosmetics. Even in the case of obvious disease of the scalp the advice of the dermatologist is often not requested until the patient has tried several of the preparations described in the glowing advertisements which adorn the popular magazine."

The chapter on the care of the hair proves instructive. Proper use of brush and comb is of the utmost im-

portance if a luxuriant appearance is to be given to the hair. Dr. Saville writes that for either brushing or combing the hair should be grasped two inches from its free end and then stroked distally until it is straight. The process is repeated again and again, each time beginning two inches higher up until the tresses can be stroked from the scalp to the free end without entanglement. She quotes with approval the hundred strokes given to the hair each night by young ladies of the Victorian era. It is important that the scalp be included in the brushing. It should be left with a pleasant tingling sensation. Regular massage forms an essential part of the care of the scalp. Washing is not necessary except at long intervals. Oily or dirty hair, of course, may require more frequent washing. A superfatted soap is preferable to those containing an excess of free alkali. The author contradicts the superstition that ascribes strengthening qualities to repeated cutting of the hair; nor does she find that cutting causes increase in the rate of growth, a finding in keeping with that of Dr. Mildred Trotter of Washington University. Singeing is mentioned only to be condemned. Permanent waving is not harmful provided certain safeguards are used in the application of the process. In particular, the heating incident to the process must not be too great.

The physician will find this book practicable. It is so arranged that particular diseased conditions may be recognized by turning to the chapter dealing with the presenting symptoms and physical findings. The material is excellently organized to serve as a ready source of reference. Directions as to treatment are meticulously offered but the average American physician may find a little difficulty in applying them because they are British. This should not prove a serious handicap. The concentration of some of the drugs recommended for treatment may prove a little higher than that ordinarily used in this country. For example, in the treatment of alopecia areata an ointment consisting of one third part of oil of cade is suggested.

It seems to us that the physician who would like a ready reference dealing with a field closely allied to medicine and of tremendous practical and sentimental importance to the women who form such a large part of his clientele might do well to add this little volume to his library.

There is a genuine need for a wider understanding of the problem of the homosexual individual. Whether homosexuality results from anomalous development of the psycho-endocrine system or through force of external circumstance, the life of the sufferer is fraught with much unnecessary distress. The unmarried woman, even though she lives in the close companionship of another woman is not always a homosexual person. Miss Laura Hutton, Physician to the Institute of Medical Psychology, London, makes an honest attempt to present a sympathetic account of "The Single Woman and Her Emotional Problems" (William Wood & Company, Baltimore). A ponderous style with which she approaches the problem detracts from the reader's pleasure and ready understanding. The following sentence illustrates Miss Hutton's point of view as well as her stylistic difficulties: "In spite of this Scylla and Charybdis of under- and over-repression in regard to the earliest instinctual impulses, the fact remains that the sexual instinct, which can only mature after these earlier phases have been successfully worked through, is peculiarly adapted to sublimation, and this sublimation may take innumerable forms; for

example, some aspects of the religious life, delight in beauty of all kinds, energy in sports, creative work, understanding and love of children, care of the sick, interest in scientific research, etc."

In spite of the unsatisfactory style the illumination which the author throws upon the whole subject may prove extremely valuable in interpreting the vague complaints of "the large number of more or less independent single women of mature age who earn their own living and make a big contribution to the life of our cities." Distinctly, this is not a book to be recommended to the sufferer. The subject is complex and the interpretation must be offered to her by one capable of guiding her through the hardships of understanding and sublimation. It should also be mentioned that many American psychiatrists will attack the emotional problem of the single woman from a point of view altogether opposite to that recommended by Miss Hutton.

OBITUARY

HARRY N. LUTMAN, M.D.

Dr. Harry N. Lutman, Versailles, a graduate of the Barnes Medical College, St. Louis, 1899, died of a heart attack November 26, 1935, aged 64.

Dr. Lutman was born in Morgan County. He grew to manhood at Lutman Postoffice, where he attended school and later was a student at Central Business College, Sedalia, and Central Missouri State Teachers' College, Warrensburg.

For five years after his graduation from medical school he practiced at Folsom, New Mexico, and in 1904 returned to Missouri and located in Versailles. He had a busy practice, much of his work in later years being that of consulting physician and surgeon. For years he was local physician for the Missouri Pacific Lines.

Dr. Lutman was a medical officer during the World War serving at the Medical Officers' Training School, Fort Riley, Kansas, and as captain at Camp Travis, San Antonio, Texas.

For a number of years Dr. Lutman was a leader in the Republican party in Morgan County. At various times he was county health officer, member of the city health board and a member of the United States Board of Pension Examiners. He was active in church and lodge work. He was postmaster at the time of his death.

The many people with whom he came in contact during his long period of service will remember his friendly influence in the years to come.

He is survived by a daughter, Miss Elizabeth Lutman, Versailles.

JAMES FRANKLIN GULLIC, M.D.

Dr. J. Frank Gullic, Koshkonong, a graduate of the Memphis Hospital Medical College, Memphis, Tennessee, 1903, died December 6, 1935, after a lingering illness of cancer of the throat. He was 56 years old. He had undergone several operations and was confined to his bed the last three months of his life.

He was born in McCleansboro, Illinois, but moved when a youth to Thayer, Missouri, where he obtained his early education.

Dr. Gullic began his practice in Alton but soon moved to Koshkonong where he remained in practice until his health became impaired. He also operated a drug store at Koshkonong.

He was a charter member of the Howell-Oregon-Texas County Medical Society and served his So-

ciety at different times as president, vice president and delegate to the Annual Sessions.

Dr. Gullic is survived by his widow, Mrs. Mary Pierce Gullic, three sons, two brothers and a sister.

CHETT McDONALD, M.D.

Dr. Chett McDonald, Kansas City, was the son of Dr. Calvin D. and Mary Shields McDonald. He was born in Mount Blanchard, Ohio, December 22, 1864. His parents moved to Carrollton, Missouri, in 1868, where his father practiced his profession for two years and in 1870 he moved to Kansas City, Missouri, where he became a well known physician. He was one of the organizers and the first president of the Jackson County Medical Society in 1881, and served as coroner for four years.

Dr. Chett was educated in the public schools of Kansas City and was graduated from the University Medical College of that city in 1891, and joined the Jackson County Medical Society in 1894. He was elected an honor member in 1930.

He enjoyed a large general practice. He served as coroner from 1920 to 1925. Owing to ill health he retired in 1925 and moved to Beverly Hills, California, where he died February 13, 1936. His wife, Mrs. Caroline McDonald of the home, and Mrs. Parks, a sister, of New York City, survive.

He was a member of St. Joseph Hospital staff in Kansas City. He served in the World War in the medical department in Washington.

The following character traits stood out in the life of Dr. Chett McDonald: Simplicity of life, nobleness of purpose, sincerity, neatness, patience and faith in other physicians. He had convictions and courage and a will to work to the very end in the profession he so efficiently served.—H. F. in the Jackson County Medical Journal.

JOHN ELLIS JENNINGS, M.D.

Dr. John Ellis Jennings, St. Louis, was born in Harrisburg, Pennsylvania, in 1863. He graduated in medicine from the University of Pennsylvania in 1887. Accompanied by his brother-in-law, Dr. James Thornton, he journeyed to Costa Rica and other parts of Central America where, for five years, they engaged in the general practice of medicine.

Always interested in ophthalmology, Dr. Jennings determined to make this specialty his life work. He first studied in Vienna. Later he went to London where he soon became clinical assistant at the Royal London Ophthalmic Hospital. He did not confine his work to ophthalmology alone but equipped himself in otolaryngology and before leaving London he was elected a fellow of the British Laryngological and Rhinological Association.

After three years of intensive study he returned to the United States and located in St. Louis where he established himself in practice in 1893. He delivered lectures in ophthalmology at the Beaumont Medical College before this institution was merged with the Marion-Sims College to form the St. Louis University School of Medicine. Soon after coming to St. Louis he served on the staffs of the Mullanphy Hospital and the St. Louis City Hospital. Later he became ophthalmic surgeon to the Frisco Hospital, a position which he retained up to the time of his death. He was a member of the American Medical Association, the American College of Surgeons and the American Academy of Ophthalmology and Otolaryngology. At one time he was secretary of the St. Louis Medical Society.

Very early in his career he became interested in

color vision and color blindness and in 1896 he published a "Manual of Color Vision" which was so clear and practical that the demand necessitated several editions. He also devised a self-registering color test based on the Holmgren wools which obtained wide acceptance by the railroads and in government services.

Possessed of a natural talent for drawing and a keen sense of color values, Dr. Jennings produced excellent drawings, in colors, of various diseased states of the ocular fundus. These drawings were later incorporated into a "Manual of Ophthalmoscopy," which he published in 1904.

Dr. Jennings was a music lover, not merely as a listener but as a performer. During his first years in St. Louis he belonged to a small musical club in which he played the mandolin. When he was 48 years of age he became interested in chamber music and took lessons on the cello. After attaining a certain proficiency on this instrument his interest was suddenly diverted to art. This interest was not that of a dilettante; he studied hard and read widely. His first instructor was the well known artist, Dawson Watson. He was the friend of many artists and gleaned from each one new ideas and inspirations. One of his personal friends was Tom Barnett. In the summer of 1926 these two sailed for France where they spent most of their time in Brittany, painting from morning until night. One summer was spent in touring New England and Nova Scotia, and another in California. The last few summers he spent at his wife's old home near the Susquehanna River in Pennsylvania.

All branches of art interested him. He began in oils, later shifting to water colors. He made a few small etchings, and once said to his wife, "If only there were more time; if only the days were longer—I think I would like to work in clay; do something in sculpturing!" One day he remarked "I may never be a real artist, but think of the fun I get trying to be!" The last time his wife saw him, a few hours before his death, he said, "Here we are—together—in India—we've always wanted to go there."

His artistic bent led him naturally to membership in the St. Louis Artists Guild.

With the help of his friends, Corrubia and O'Neil, he organized and was first president of a "Business Men's Art Club" for the purpose of self-expression and recreation.

In his relations with his colleagues in ophthalmology, Dr. Jennings had a certain self-effacing quality which tended to make one forgetful of the fine attainments and true worth of the man.

He lived a full life and has left a happy memory to all his colleagues and friends.

He is survived by his widow; a son, a sister and three brothers.—J. G. in the *Bulletin* of the St. Louis Medical Society.

Benjamin G. Horning, Hartford, Conn. (*Journal A. M. A.*, Dec. 14, 1935), speaks of an outbreak of undulant fever with fourteen cases and three deaths that occurred in a home for elderly persons. Raw milk from the institution herd was the only source of infection found. The herd consisted of thirty-six cows and one bull. The blood from two cows was positive and from another suggestive for brucella infection. *Brucella suis* was isolated from the blood of two patients and from an abscess of a third patient. Blood was drawn from thirty-two swine kept by the institution. Nine were positive and seven suggestive for brucella infection. The cattle had opportunity for natural infection from the swine.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1936

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 19, 1935.

Montgomery County Medical Society, January 7, 1936.

Ste. Genevieve County Medical Society, January 8, 1936.

Camden County Medical Society, January 9, 1936.

Dent County Medical Society, January 13, 1936.

Perry County Medical Society, January 17, 1936.

Webster County Medical Society, February 4, 1936.

Moniteau County Medical Society, February 29, 1936.

ADAIR-SCHUYLER COUNTY MEDICAL SOCIETY

The Adair-Schuyler County Medical Society met at the Grim-Smith Hospital in Kirksville on February 6 at 6:30 p. m. as guests of the hospital staff. An excellent dinner was served in the dining room of the hospital.

Dr. E. S. Smith, Kirksville, read a paper on "The Management of the Chorea Child," stressing the influence of extracurricular activities, exposure to prolonged cold and fatigue and emotional shock on lowering the blood calcium and thus predisposing the child to choreic adventure. The essayist reported three cases of chorea treated with rest in bed and massive doses of calcium gluconate.

Dr. J. J. Wimp, Kirksville, reported results of pre-lactal feeding of 125 consecutive babies which included thirteen abnormal new-born infants. The solution used was beta lactose 4.7 per cent sterile, distilled water and 1 dram of sodium citrate to the quart of sugar mixture.

Dr. Spencer L. Freeman, Kirksville, read a paper on "Indications for Tonsillectomy."

Those present were Drs. Don Pierce, Gorin; M. L. Haning, Browning; E. W. Hickson, Milan; Ida M. Nulton, Lancaster; J. S. Gashwiler, Novinger; E. C. Grim, Geo. E. Grim, E. S. Smith, Spencer L. Freeman, J. J. Wimp and J. F. Dodson, Kirksville.

Dr. J. W. Martin, Kirksville, honor member of the Society is ill but is improved sufficiently to have returned to his home from the hospital.

J. S. GASHWILER, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met January 28 with eleven members and one visitor present.

Announcement was made that Dr. Ernest Sachs, St. Louis, would address the Society on February 11 and that Dr. John Costen, St. Louis, would speak before the medical and dental societies jointly on February 25.

Dr. O. T. Blanke, Joplin, president, appointed Drs. W. M. Kinney, Chairman; S. A. Grantham, Jr., and John Sims, Joplin, as the broadcasting committee.

Dr. Blanke appointed Dr. R. M. James, Chairman, and Dr. Albert Chenoweth, Joplin, a committee on the Medical and Dental Service Bureau during the coming year, these men to act with appointees from the Dental Society and hospitals.

Dr. S. A. Grantham, Jr., Joplin, presented a paper on "Fracture Review for 1935," which was an interesting paper and was illustrated by several roentgen rays demonstrating his cases.

Meeting of February 11

The Society met February 11 with forty-three members and visitors present.

Dr. O. T. Blanke, Joplin, president, announced that the chairman of the disaster relief committee of the American Red Cross desired that a committee be formed by members of the Society to cooperate with them. It was voted that this committee be appointed by the president.

Dr. Ernest Sachs, St. Louis, discussed "Early Diagnosis of Brain Tumors." Dr. Sachs gave the history of brain surgery and its development. He stated that in recent years he had been using avertin anesthetic for his surgical procedures which had greatly helped the individual through the long tiresome process of having tumors removed. He demonstrated his talk with slides showing various types of visual field defects in brain tumors, air injection of the ventricles and setup for operating. In closing, Dr. Sachs stated that general convulsions occurring in adult patients without syphilis was in the large majority of cases the initial symptom.

J. W. HARDY, M.D., Secretary.

PERRY COUNTY MEDICAL SOCIETY

The Perry County Medical Society was called to order by the president, Dr. O. A. Carron, Perryville, at 8:30 p. m., January 21.

The secretary reported that a small per cent of the drug stores of Perryville responded with a written approval and agreement to abide by the resolution recently passed by the Society in regard to cooperating with the medical profession for the benefit of the patient.

The secretary was instructed to correspond with other county societies in the District and select a suitable date for a lecture for the profession and the laity on "Cancer of the Skin, Lip and Oral Cavity," sponsored by the Committee on Cancer of the Missouri State Medical Association.

The present officers were reelected as follows: President, Dr. O. A. Carron, Perryville, and secretary, Dr. Jerome J. Bredall, Perryville.

The secretary reported a 100 per cent collection of dues.

JEROME J. BREDALL, M.D., Secretary.

PETTIS COUNTY MEDICAL SOCIETY

The Pettis County Medical Society met at the Bothwell Memorial Hospital, Sedalia, February 17. A dinner was served by the hospital attendants at 7 o'clock.

The following members were in attendance: Drs. W. A. Beckemeyer, W. T. Bishop, J. W. Boger, Cord Bohling, A. J. Campbell, D. P. Dyer, F. B. Long, J. G. Love, C. A. McNeil, F. R. Morley, C. D. Osborne, J. E. Mitchell, E. H. Schaefer, M. P. Shy and C. G. Staffacher, Sedalia.

In the absence of the president, Dr. Henry A. Hite, Green Ridge, the vice president, Dr. Gordon A. Stauffacher, Sedalia, introduced the guest speaker, Dr. Andrew W. McAlester, III, Kansas City.

Dr. McAlester spoke on "Eye Findings as a Guide

to the Treatment of Syphilis of the Nervous System." The discourse was illustrated with slides depicting the retinal changes in this disease.

Between 10 a. m. and 5 p. m. a diagnostic eye clinic sponsored by the Missouri Commission for the Blind was held in the assembly room of the County Court House. Examinations were made by Drs. Andrew W. McAlester, III, Kansas City, J. G. Love, Guy Titsworth and Edward H. Schaefer, Sedalia. Mrs. Mary E. Ryder of the Commission and Mrs. Antionette M. Grant, pension investigator, with a number of assistants from St. Louis and many volunteers from Sedalia were of invaluable help in taking charge of 500 people who came to the clinic in zero weather. Although the examinations were provided for those who were entirely destitute, some people who were able to pay came to take advantage of the opportunity.

EDWARD H. SCHAEFER, M.D., Secretary.

SOUTH CENTRAL COUNTIES MEDICAL SOCIETY

The South Central Counties Medical Society met at the Horton Hotel, Willow Springs, February 6, for dinner at noon. The following members and visitors were present: Drs. A. H. Thornburgh, E. C. Bohrer and J. W. Bingham, West Plains; H. G. Frame, R. A. Ryan and A. C. Ames, Mountain Grove; J. C. B. Davis, Willow Springs, and J. B. McDaniel, Summersville.

Dr. Deborah Doan, Bakersfield, was unanimously elected to membership by transfer from the Grundy-Daviess County Medical Society.

Mr. Walter Erb and Miss Marguerite Varley, St. Louis, who are making a health survey in Missouri for the United States Public Health Service were present and explained the work they are doing and asked the cooperation of the members.

It was voted that upon payment of dues for 1935 all delinquent dues would be remitted and that in 1936 and future years dues must be paid by July 1 or the member will automatically be suspended.

Dr. E. C. Bohrer, West Plains, read a paper on "Artificial Pneumothorax in Pulmonary Tuberculosis" and showed roentgen ray films illustrating the subject. All agreed that his presentation was worthy of great credit.

Dr. R. A. Ryan, Mountain Grove, reported that he had been unable to control the case of vomiting of pregnancy reported at the last meeting by intravenous injection of hydrochloric acid as advised by members but that the woman had been delivered of a healthy child and was now well. The fact that this woman had, as she understood, one ovary and part of the other and both tubes removed brought up a discussion of sterilization in the female.

Dr. A. C. Ames, Mountain Grove, reported that the pregnant woman he was treating for a severe burn at the time of the last meeting aborted five weeks after being burned and died three weeks later after much of the burn had healed.

A resolution was passed asking the physicians of Springfield to try and resurrect the Southwest Missouri Medical Society and hold a one day meeting once a year with a banquet at night to give opportunity to physicians of neighboring towns to get acquainted.

It was voted to hold the next meeting at Willow Springs on April 2 and in the meantime to ask the physicians to decide by ballot whether or not Willow Springs shall be made a permanent meeting place and to offer suggestions on how the meetings can be made more profitable.

A. C. AMES, M.D., Secretary.

MISSOURI STATE MEDICAL ASSOCIATION

79th Annual Meeting, Hotel Tiger, Columbia

The 79th Annual Meeting of the Association convenes at Columbia, Monday, Tuesday and Wednesday, April 13, 14 and 15.

HOUSE OF DELEGATES

Ballroom, Hotel Tiger

First Meeting—Monday, April 13, 1936—9:30 a. m.

Order of Business

Roll Call.

Reading of Minutes of Previous Meeting.

Reading of President's Message and Recommendations.

Appointment of Reference Committees—

Committee on Amendments to the Constitution and By-Laws.

Committee on Resolutions.

Committee on Miscellaneous Affairs.

Report of the General Committee on Arrangements: W. L. Allee, Eldon, Chairman.

Report of the Local Committee on Arrangements: Dudley A. Robnett, Columbia, Chairman.

Report of the Secretary.

Report of the Treasurer.

Report of the Committee on Scientific Work: E. J. Goodwin, St. Louis, Chairman.

Report of the Committee on Postgraduate Work: C. H. Neilson, St. Louis, Chairman.

Report of the Committee on Publication: J. C. B. Davis, Willow Springs, Chairman.

Report of the Committee on Public Policy: J. F. Harrison, Mexico, Chairman.

Report of the Committee on Defense: C. H. Hyndman, St. Louis, Chairman.

Report of the Committee on Medical Education and Hospitals: Dudley S. Conley, Columbia, Chairman.

Report of Committee on Cancer: Ellis Fischel, St. Louis, Chairman.

Report of Committee on Medical Economics: Joseph W. Love, Springfield, Chairman.

Report of Special Committees—

Committee on Mental Health: G. Wilse Robinson, Kansas City, Chairman.

Committee on Maternal Welfare: Ralph R. Wilson, Kansas City, Chairman.

Committee on Physical Therapy: A. J. Kotkis, St. Louis, Chairman.

Committee on Medical-Legal Affairs: W. L. Allee, Eldon, Chairman.

Committee on Study of Constitution and By-Laws: Frank G. Mays, Washington, Chairman.

Subsidiary Committee on Medical Economics: Carl F. Vohs, St. Louis, Chairman.

McAlester Memorial Foundation: A. R. McComas, Sturgeon, Chairman.

Appointment of Committee on Nominations.

Unfinished Business.

Recess until 4:00 p. m.

Report of the Council: A. R. McComas, Sturgeon, Chairman.

Report of Reference Committees—

Committee on Amendments to the Constitution and By-Laws.

Committee on Resolutions.

Committee on Miscellaneous Affairs.

New Business (Resolutions, Memorials, etc.)

Selection of Place of Next Session.

Second Meeting, Wednesday, April 15, 1936—4:00 p. m.

Ballroom, Hotel Tiger

Roll Call.

Reading of Minutes.

Election of Officers—

Election of President-Elect.

Report of Committee on Nominations.

Installation of President.

Nominations for Standing Committees by President and Confirmation by House of Delegates.

Unfinished Business.

MATERNAL WELFARE COMMITTEE

Monday, April 13, 1936—6:00 p. m. Colonial Room, Hotel Tiger

Dinner Meeting

Presentation of Reports of Maternal Deaths During 1936.....
 Members of Committee on Maternal Welfare, Missouri State Medical
 Association

Guest Speaker

Critique of Submitted Maternal Death Reports.....
 Joseph L. Baer, M.D., Chicago, Associate Clinical Professor of Obstetrics
 and Gynecology, Rush Medical College, University of Chicago

All members are invited to attend this meeting and participate in the
 discussion.

GENERAL MEETING

Monday, April 13, 1936—1:00 p. m. Ballroom, Hotel Tiger

Impaired Hearing: Classification and Management.....
Sam E. Roberts, M.D., Kansas City
 Management of Squint.....C. Souter Smith, M.D., Springfield
 Diagnosis and Treatment of Ocular Complications in Syphilis.....
Wm. M. James, M.D., St. Louis
 Rational Treatment of Chronic Sinus Diseases.....
W. Byron Black, M.D., Kansas City
 Complications of Pyogenic Osteomyelitis and Their Treatment.....
Jacob Kulowski, M.D., St. Joseph
 Etiology of Mesenteric Thrombosis.....John R. Green, M.D., Independence

GENERAL MEETING

Tuesday, April 14, 1936—8:30 a. m. Ballroom, Hotel Tiger

Address of Welcome
Frederick A. Middlebush, Columbia, President, University of Missouri
 Address of the President.....E. Lee Miller, M.D., Kansas City
 Address of the President-Elect.....Ross A. Woolsey, M.D., St. Louis

Guest Speaker

Operative Obstetrics.....Joseph L. Baer, M.D., Chicago, Associate Clinical
 Professor of Obstetrics and Gynecology, Rush Medical College, Univer-
 sity of Chicago
 Prolapse of the Uterus: Operative Treatment With Special Reference to the
 Manchester Operation.....E. Lee Dorsett, M.D., St. Louis
 The Loose Kidney Problem and the General Profession.....
Bransford Lewis, M.D., St. Louis
 Problems of the Female Urethra.....E. E. Sexton, M.D., St. Louis
 Serious Complications and Sequelae Resulting From the Injection Therapy
 of Varicose Veins.....J. G. Probst, M.D., St. Louis
 Methods of Examination of Low Back Pain..John H. Ogilvie, M.D., Kansas City

GENERAL MEETING

Tuesday, April 14, 1936—1:00 p. m. Ballroom, Hotel Tiger

- The Clinical Use of Digitalis: Its Variables.....L. S. Luton, M.D., St. Louis
Nature and Treatment of Obesity.....D. P. Barr, M.D., St. Louis
A Ten Year Mortality Study in Toxic Goiter.....
.....Willard Bartlett, Jr., M.D., St. Louis
Pernicious Anemia.....H. P. Boughnau, M.D., Kansas City
Management of Injuries to the Spine and Pelvis—E. P. Heller, M.D., Kansas City
Tumors of Superior Mediastinum: Clinical Aspects; Roentgen Aspects;
Pathologic Aspects.....C. E. Bell, M.D. (by invitation);
Ira H. Lockwood, M.D., and F. C. Narr, M.D., Kansas City
The Production of Prolonged Stimulation of a Sympathetic Nerve Trunk:
After the Method of Burrows.....J. H. Hershey, M.D., St. Louis
Modern Trend of the Treatment of Staphylococcus Infection.....
.....Carl R. Ferris, M.D., Kansas City

ENTERTAINMENT

Tuesday, April 14, 1936—8:15 p. m. Ballroom, Hotel Tiger

- Headquarters of the American Medical Association (motion picture).....
Austin A. Hayden, M.D., Chicago, Secretary, Board of Trustees, American
Medical Association
Entertainment.....Boone County Medical Society, Host

GENERAL MEETING

Wednesday, April 15, 1936—8:30 a. m. Ballroom, Hotel Tiger

- Pneumococcic Peritonitis.....H. A. Lowe, M.D., Springfield
Cancer Viewed as a Preventable Disease.....M. Pinson Neal, M.D., Columbia
Determination of Type of Treatment for Cancer From Pathological Studies
.....Ferdinand C. Helwig, M.D., Kansas City
Trauma as an Etiologic Factor in Carcinoma.....
.....Wm. E. Leighton, M.D., St. Louis
Diagnosis and Treatment of Carcinoma of the Breast.....
.....Robert E. Schlueter, M.D., St. Louis
Cancer of the Rectum.....Ellis Fischel, M.D., St. Louis
Cancer of the Larynx.....M. F. Arbuckle, M.D., St. Louis

GENERAL MEETING

Wednesday, April 15, 1936—1:00 p. m. Ballroom, Hotel Tiger

- Pathology of Silicosis and Silicotuberculosis.....W. M. Kinney, M.D., Joplin
When Therapeutic Pneumothorax for Tuberculosis Should be Instituted and
When It Should be Discontinued.....H. I. Spector, M.D., St. Louis
Endocrine Treatment in Gynecology.....R. J. Crossen, M.D., St. Louis
The Ileocecal Segment.....J. W. Larimore, M.D., St. Louis
Common Duct Gall Stones.....Louis Rassieur, M.D., St. Louis

At 3:30 p. m. the General Meeting will adjourn and the House of Delegates will immediately go into Session.

COMMERCIAL EXHIBITS

Mezzanine Floor, Hotel Tiger

PHILIP MORRIS & CO., LTD., 119 FIFTH AVE., NEW YORK, BOOTH 1.

Philip Morris & Co., Ltd., are demonstrating the method by which it was found that Philip Morris cigarettes, in which diethylene glycol is used as the hygroscopic agent, are less irritating than ordinary cigarettes in which glycerine is employed.

MERCK & COMPANY, INC., RAILWAY, NEW JERSEY (4528 S. BROADWAY, ST. LOUIS), BOOTH 2.

Merck & Company, Inc., are displaying among other products Cebione (pure crystalline vitamin C) which is now available in convenient tablet form for oral administration and also in ampules of the pure crystals for patients requiring intravenous administration.

C. V. MOSBY & COMPANY, 3523 PINE BLVD., ST. LOUIS, BOOTH 3.

The C. V. Mosby Company are exhibiting a complete line of medical publications. Among the newer items being shown for the first time are "Abortion," by Taussig; "Allergy of the Nose and Paranasal Sinuses," by Hansel; "Synopsis of Laboratory Methods," by Bray, and "Medical Mycology," by Dodge. Also displayed are the following recent books and new editions: "Clinical Laboratory Methods and Diagnosis," by Gradwohl; "Infant Nutrition," by Marriott; "Physiology in Modern Medicine," by Macleod; "Methods of Treatment," by Clendenen; "Diseases of Women," by Crossen; "Immunology," by Sherwood; "Parathyroids in Health and in Disease," by Shelling; "Diseases of the Skin" by Sutton; "Synopsis of Pediatrics," by Zahorsky; "Synopsis of Genito-Urinary System," by Dodson, and "Diseases of the Thyroid Gland," by Hertzler.

SUTLIFF & CASE CO., INC., 312 S. ADAMS ST., PEORIA, ILLINOIS, BOOTH 4.

Sutliff & Case Co., Inc., pharmaceutical manufacturers since 1883, are displaying A-Vitam-Ung, indicated as a general surgical dressing and in the treatment of burns (2nd and 3rd degree), chronic ulcers and infected wounds. Contains 2000 U. S. P. X. (Rev. 1934) units pro-vitamin A per gram in the presterilized vegetable and mineral fats base. It is anti-infective; promotes rapid epithelization; is proteolytic on necrotic tissues; does not cause excessive granulation; can be applied to denuded areas; closes infected ulcerated areas rapidly; produces proliferation of young cells; promotes the growth of explanted tissue. This display will be of particular interest to industrial practitioners as case reports show the employment of A-Vitam-Ung decreases functional disability approximately 30 per cent.

A. S. ALOE COMPANY, 1819 OLIVE ST., ST. LOUIS, BOOTH 5.

The A. S. Aloe Company is showing a complete general line of instruments and equipment offering everything for the physician and hospital. A line of rustless steel instruments will be offered at a special discount. In addition the new Aloe Short Wave Diatherm and the new style Elliott machine are being shown. The Aloe Company's Missouri representative, Mr. Beyreuther, is in attendance to serve in any way possible.

MEDICAL PROTECTIVE COMPANY, WHEATON, ILLINOIS, BOOTH 6.

The most exacting requirements of adequate liability protection are those of the professional liability field. Representatives thoroughly trained in professional liability underwriting invite you to confer with them at the booth of the Medical Protective Company, specialists in providing protection for professional men.

LEPEL HIGH FREQUENCY LABORATORIES, 39 WEST 60TH ST., NEW YORK, BOOTH 7.

The Lepel High Frequency Laboratories are displaying their ultra-short wave machine and ultra-violet lamps for professional use. Lepel electrotherapeutic machines are accepted by the Council on Physical Therapy of the American Medical Association and endorsed by leading institutions and physicians.

LEA & FEBIGER, 600 S. WASHINGTON SQUARE, PHILADELPHIA, BOOTH 8.

Lea & Febiger, publishers, are exhibiting new works and new editions of standard medical books under the direction of Mr. Leo Claary. Among the new works are "Surgical Diseases of the Chest" by Graham, Singer and Ballou; "The Kidney" by Berglund and Medes; "Parasitology" by DeRivas; "Food Analyses" by Bridges; "Treatment of Pulmonary Tuberculosis" by Hawes and Stone. New editions are shown of "Diabetes" by Joslin; "Arthritis" by Pemherton and "Fractures and Dislocations" by Speed.

HOLLAND-RANTOS COMPANY, INC., 37 EAST 18TH ST., NEW YORK, BOOTH 9.

The Holland-Rantos Company, manufacturers of gynecological specialties, will display "H-R Ethical Contraceptives," a historical film on scientific contraception. Powder Vaginal Insufflator for Trichomonas vaginalis and H-R surgical textiles will be displayed. Mr. William Allen will represent the company.

HAMILTON-SCHMIDT SURGICAL COMPANY, 215 N. TENTH ST., ST. LOUIS, BOOTH 10.

The Hamilton-Schmidt Surgical Company are displaying an interesting variety of new surgical instruments, also physiotherapy equipment. A new Short-Wave Unit is being demonstrated. Representatives will be glad to meet friends and discuss surgical equipment.

MEAD JOHNSON & COMPANY, EVANSVILLE, INDIANA, BOOTH 11.

Mead Johnson & Company has on exhibit its complete line of infant diet materials including Dextri-Maltose Nos. 1, 2 and 3, Dextri-Maltose with Vitamine B, Mead's Standardized Cod Liver Oil, Mead's Viosterol in Oil, Mead's Cod Liver Oil with Viosterol, Mead's Viosterol in Halibut Liver Oil (liquid and capsules), Mead's Halibut Liver Oil, Mead's Oleum Percomorphum (liquid and capsules), Mead's Cod Liver Oil Fortified with Percomorph Liver Oil, Mead's Brewers Yeast (tablets and powder), Pahlum, Mead's Cereal, Sobee, Mead's Powdered Protein Milk, Mead's Powder Lactic Acid Milk Nos. 1 and 2, Mead's Powdered Whole Milk, Alacta, Reolac and Casec. There is also for the examination of physicians a complete line of Mead's services such as "Diets for Children from Four Months to Four Years," height and weight charts, etc., all of which are free to members of the medical profession in any quantity desired. Representatives will be on hand to meet their friends and to discuss the application of any of the Mead products to infant feeding problems.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

14th Annual Meeting, Kansas City, 1936

President, Mrs. Rogers N. Herbert, Nashville, Tennessee.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

12th Annual Meeting, Columbia,
April 14, 15, 1936

President, Mrs. M. Pinson Neal, Columbia.
President-Elect, Mrs. Walter Kirchner, St. Louis.
Adviser, Dr. J. F. Harrison, Mexico.

PROGRAM

Headquarters: Daniel Boone Tavern, Columbia

Monday, April 13

7:30 p. m. Mezzanine Floor. Boone County Auxiliary members will welcome an opportunity to meet visitors.

Tuesday, April 14

9:00 a. m. Registration.

10:00 a. m. Executive Board Meeting.

12:30 p. m. Luncheon at Harris' Cafe. (50 cents per plate.)

4:00 p. m. Tea. Boone County Auxiliary, hostess, at the home of Dr. and Mrs. Dudley A. Robnett, Country Club Drive.

7:00 p. m. Dinner. Daniel Boone Tavern.

Wednesday, April 15

8:30 a. m. Registration.

9:00 a. m. General Meeting.

Invocation, Rev. J. M. Garrison, Pastor, Presbyterian Church, Columbia

Address of Welcome, Mrs. Mazyck P. Ravenel, Columbia, President, Boone County Auxiliary.

Response, Mrs. Herbert L. Mantz, Kansas City. President, Jackson County Auxiliary.

Roll Call of Officers and Delegates.

Committee Reports.

Resolutions.

In Memoriam, Mrs. C. M. Sneed, Columbia.

1:00 p. m. Luncheon. Sinclair Pennant Hotel. (Per plate, 75 cents.)

Addresses.

Introduction of New Officers.

3:00 p. m. Postconvention Board Meeting.

THE AUXILIARY AND THE COLUMBIA MEETING

The Woman's Auxiliary to the Missouri State Medical Association was organized twelve years ago for a purpose. Some accomplishments are to our credit and many opportunities lie before us. In these changing times of economic, political and social upsets, or near upsets, the medical profession is faced with many problems. We, as a body of interested women members of physicians' families, are organized to lend

a helping hand if needed and when sought by that profession.

To further our objectives we need to be strong in numbers; that is, to have in our group a large majority of those entitled to membership. If the city or county in which you reside is not organized into an auxiliary unit you are privileged to hold membership-at-large.

This is to invite and encourage each member and every woman eligible for membership to attend the Twelfth Annual Meeting of the Auxiliary at Columbia during the meeting of the State Medical Association, April 13 to 15.—Mrs. M. PINSON NEAL, President.

THE CONVENTIONS

Which Conventions?

State and National Medical Auxiliary.

When?

April 13-15 and May 11-15.

Where?

Columbia and Kansas City.

Why?

Because:

1. You will meet the National Officers and Leaders.
2. You will become acquainted with the National Program.
3. You will learn what other State Auxiliaries are doing.
4. You will meet interesting women from many sections of the United States.
5. You will be glad you are an Auxiliary member.
6. Or, you will wish to become an Auxiliary member.

Come On! Let's Go!—Mrs. DAVID S. LONG.

MISCELLANY

COMMITTEE ON MATERNAL WELFARE

Postpartum Pulmonary Complications

QUESTION.—Are postpartum pulmonary complications usually serious?

ANSWER.—Postpartum pulmonary complications may be classified as follow:

(1) Aspiration tracheitis, bronchitis or even bronchial pneumonia is usually not one of great seriousness; but with the present mode of giving large doses of barbiturates along with general anesthetics, such as ether, it is safe to assume that this type of complication is increasing. This may be the result of an excessive dryness of the mucous membranes and throat during labor or may be due to an inhalation of vomitus during or following labor. Such conditions may develop in the best of hands; but it requires careful attention on the part of the attendant to keep the number of occurrences to a minimum. A patient may have a short labor soon after a meal; she may vomit during the early or the later stages of the anesthesia. Chilling of the body following the delivery aggravates the condition severely. Until the patient is entirely awake and has her laryngeal reflexes she is to be carefully watched by an attendant to prevent aspiration from vomitus. In recognized cases it is well to maintain a normal body temperature, supply a croup kettle for steam inhalations and administer opiates freely. If properly watched, these usually do not progress into serious conditions; although, if coughing is very pronounced and the patient has had a perineal repair, the coughing may be

a great factor in preventing primary union of the sutures.

(2) Pneumonia at any time during pregnancy or postpartum is a most serious condition. During seasons of its prevalence all patients should be carefully instructed about undue exposure or unnecessary exhaustion. Immunity can change within a short period of time. It is to be remembered that electric fans in summer seasons, if indiscreetly applied to the body, may be a factor in pneumonia, even out of season. All cases going into labor with unexplained temperature or rapidity of pulse should have their lungs carefully examined lest pneumonia be in its incipency at the time. These cases always show premature exhaustion during labor that may even end fatally in the process of delivery. Noncooperative patients may get out of bed against instructions and thereby unnecessarily expose themselves; otherwise, rarely does true pneumonia develop after the first forty-eight hours postpartum. The treatment of pneumonia postpartum can be little different from that of treatment at any other time. The prognosis, however, is exceedingly grave if it develops within the first twenty-four hours. In cases of doubt, a roentgen ray examination of the chest may be of great value if it is available.

(3) Pulmonary embolism is the most common cause of sudden death in the parturient and puerperal patient. It rarely occurs during the first week, but there are cases of former rheumatic heart disease which develop this complication even a few hours after the labor is finished. Pelvic thrombosis, thrombophlebitis, and varicosities of any part of the body are the sources of embolism in later puerperium. All grades of attacks occur, from a sudden blood-stained sputum followed by sudden death (all evolving within a short period of time, often less than an hour) to other degrees more mild, depending upon the amount of area and lung involved. Cases are also known to be practically recovered from the first attack when a second or even perhaps, a third recurred. Aside from symptomatic treatment, morphine in massive doses is, perhaps, the best agent. Any patient surviving an attack of embolism should be kept in bed for a full week after a return to normal of both the pulse and the temperature. The value of an oxygen tent in these cases is doubtful.

(4) Collapse of the lung and atelectasis occur infrequently but in cases following difficult vaginal deliveries in which there has been extensive vaginal manipulation, or perhaps a difficult and complicated cesarean section, attendants should always be on the lookout for the development of this condition. If uncomplicated, the prognosis is good. In these cases sedation should not be carried to the same extent as in embolism; and carbon dioxide inhalations are of extreme value; if not available, turning the patient from side to side several times during the day will hasten reinflation. Without early diagnosis these complications may progress into typical bronchial or lobar pneumonia.

BUDGET FOR 1936

Salaries (office and JOURNAL).....	\$12,100.00
JOURNAL	6,500.00
Legislation	1,000.00
Defense	1,000.00
Postage	400.00
Postgraduate Work	1,000.00
Printing and stationery	800.00
Traveling expenses, Secretary and Assistant Secretary	1,100.00
Telephone and telegraph	800.00
Rent of office and light	1,400.00
Meetings (Annual Session, Council, Executive Committee)	3,000.00
General expense and miscellaneous.....	1,000.00
Total.....	\$30,100.00

FINANCIAL STATEMENT FOR 1935

ROBERT A. LENNERTSON
CERTIFIED PUBLIC ACCOUNTANT

Saint Louis

March 1, 1936.

Missouri State Medical Association,
St. Louis, Mo.
Gentlemen:

I have examined the accounts of the Missouri State Medical Association for the year 1935 and prepared therefrom the following attached exhibits:

- Exhibit A. Balance Sheet as of December 31, 1935.
- Exhibit B. Statement of Income and Expenses for the year 1935.
- Exhibit C. Summary of Cash Receipts and Disbursements by funds for the year 1935.
- Exhibit D. Dues Receivable and Membership by Counties December 31, 1935.

SCOPE OF EXAMINATION

A careful review was made of the cash receipts and disbursements for the year 1935 as shown on the Association's books. The cash receipts consisting of members' dues, JOURNAL subscriptions, JOURNAL advertising income, rent of office space and exhibition space were traced into the bank account as deposits and the disbursements were verified with paid cheques and invoices on file. Selective tests have been made of the income from various sources and the accounts examined were found to be properly recorded on the books. Space in THE JOURNAL not occupied by paid advertisements is filled by publishing reciprocal and complimentary advertisements.

The accounts appearing in the balance sheet, Exhibit A, were verified with the records of the Association and comments thereon appear later in the report.

OPERATIONS

Exhibit B presents in detail the income and expense accounts for the year 1935. A summary thereof follows:

Particulars	General	JOURNAL Publication	Together
Income	\$19,925.25	\$ 9,576.00	\$29,501.25
Expenses	18,716.96	10,781.53	29,498.49
Net income or deficit....	\$ 1,208.29	\$ 1,205.53	\$ 2.76

The result of the Association's activities for the year 1935 was an excess of income over expenses in the sum of \$2.76.

BALANCE SHEET

The financial position of the Missouri State Medical Association is sound as shown by the balance sheet, Exhibit A. Comments on the accounts included therein follow:

Cash in bank was verified with a certificate obtained from the depository and the petty cash fund was counted. The Secretary's account represents the unexpended portion of funds held by him for the payment of sundry small bills.

Advertisers' ledger accounts were reviewed as of December 31, 1935, and one account in the sum of \$33.00 was charged off as a bad debt. The balance of the accounts in the sum of \$597.02 is considered good and collectible by the management.

Exhibit D is a statement of dues receivable and membership by counties as prepared from the members' individual cards. At December 31, 1935, unpaid dues totaled \$6,054.00 from which advance payments in the sum of \$512.00 have been deducted leaving a net balance of \$5,542.00. This balance is offset by a reserve account in a like amount pending the collection of the delinquent dues.

A comparison of the membership at the close of the last two years follows:

Classification	December 31, 1935	December 31, 1934	Increase or decrease
Junior	171	187	16
Active	2799	2772	27
Honor	185	167	18
Total.....	3155	3126	29

From the above it will be seen that the membership has increased twenty-nine during the period under review.

No change has occurred in the furniture and fixture account during the year 1935, the same being carried on the books in the sum of \$810.00. Fire insurance in the sum of \$1,000.00 is carried on the furniture, books and supplies.

The records were reviewed for liabilities and it is believed that the sum of \$301.30 includes all of the Association's accounts payable at December 31, 1935. There is a contingent liability to sixteen members in connection with malpractice suits on which the maximum amount involved would be \$4,800.00. The cost to the Association for members' defense in malpractice suits during 1935 was \$781.90.

The net worth of the Association is \$12,215.09 as shown by the reserve for Fund Balances in the sum of \$11,109.37 and the surplus in the sum of \$1,105.72.

GENERAL

A surety bond in the sum of \$1,000.00 is carried on the Secretary of the Association, but the other officers and employees are not under bond. Attention is called to Chapter 5, Section 3 of the By-Laws which provides "The Treasurer shall give bond in the sum of \$20,000.00." To correct this situation, it is suggested that the By-Laws be changed and the amount of the bond to be required of any officer or employee be fixed by the Council.

The records and books examined were found to have been well maintained during the year.

Yours very truly,
R. A. LENNERTSON, Certified Public Accountant.

EXHIBIT A.

MISSOURI STATE MEDICAL ASSOCIATION—
BALANCE SHEET AS OF DECEMBER 31, 1935

Assets		
CASH:		
General Fund	} Exhibit C	\$3,405.34
Legislative Fund		2,819.69
Sinking Fund		3,069.00
Defense Fund		1,815.34
		\$11,109.37
Accounts Receivable—Advertisers		597.02
Dues Receivable—Exhibit D		5,542.00
Furniture and Fixtures		810.00
		\$18,058.39
Liabilities		
Accounts Payable:		
Supplies and Expense		\$ 237.30
Advance Payments by Advertisers		64.00
		\$ 301.30
Contingent Liability:		
To members on 16 Malpractice Suits		\$4,800.00
Reserve for Uncollected Dues		5,542.00
Reserve for Fund Balances:		
General Fund		\$3,405.34
Legislative Fund		2,819.69
Sinking Fund		3,069.00
Defense Fund		1,815.34
		11,109.37
Surplus		1,105.72
		\$18,058.39

EXHIBIT B.

MISSOURI STATE MEDICAL ASSOCIATION
STATEMENT OF INCOME AND EXPENSES
FOR THE YEAR 1935

	General Activities	JOURNAL Publication	Together
INCOME:			
Dues received (includes \$1.00 per member annually for THE JOURNAL)	\$18,985.25	\$ 2,813.00	\$21,798.25
Rentals—Annual session exhibit space	400.00		400.00
Rent from subtenant (office space)	540.00		540.00
Subscriptions to THE JOURNAL—nonmembers		66.50	66.50
Advertising space—THE JOURNAL		6,696.50	6,696.50
Total income	\$19,925.25	\$ 9,576.00	\$29,501.25
EXPENSES:			
Officers' salaries	\$ 5,113.25	\$ 2,987.59	\$ 8,100.84
Office salaries	2,389.29	883.71	3,273.00
Office rent and light	1,397.60		1,397.60
Postage	444.32	290.83	735.15
Stationery, printing and office supplies	784.48		784.48
THE JOURNAL—Paper, printing and mailing		5,246.03	5,246.03
Illustrations and cuts		224.80	224.80
Telephone and telegraph	1,140.53		1,140.53
Insurance	18.10		18.10
General expense	717.78	56.50	774.28
Bad debts	40.00	33.00	73.00
Cash discounts to advertisers		286.91	286.91
Commissions on JOURNAL advertising		746.47	746.47
Sales tax		25.69	25.69
Traveling expense—Assistant Secretary	1,337.66		1,337.66

Badges	73.20	73.20
Meetings	2,927.62	2,927.62
Cancer Committee meetings	150.81	150.81
Postgraduate meetings	474.63	474.63
Legislative expense	925.79	925.79
Defense—malpractice suits	781.90	781.90
	\$18,716.96	\$10,781.53
Net income or deficit	\$1,208.29	\$ 276

EXHIBIT C.

MISSOURI STATE MEDICAL ASSOCIATION SUM-
MARY OF CASH RECEIPTS AND DISBURSE-
MENTS BY FUNDS FOR THE YEAR 1935

	General Fund	Legislative Fund	Sinking Fund	Defense Fund
Balance, January 1, 1935	\$ 3,827.89	\$2,732.48	\$2,069.00	\$1,597.24
Receipts	28,945.37			
Transfer of Funds		2,813.00	1,000.00	1,000.00
Total to be accounted for	\$32,773.26	\$5,545.48	\$3,069.00	\$2,597.24
Disbursements	26,554.92	725.79		781.90
Transfer of funds	2,813.00	2,000.00		
Total disbursements	\$29,367.92	\$2,725.79	\$	\$ 781.90
Balance, December 31, 1935	\$ 3,405.34	\$2,819.69	\$3,069.00	\$1,815.34
Fund Balances as of December 31, 1935				
General Fund				\$3,405.34
Legislative Fund				2,819.69
Sinking Fund				3,069.00
Defense Fund				1,815.34
Total				\$11,109.37
Represented by:				
Cash in bank Mercantile-Commerce				
Bank and Trust Co.				\$10,974.93
Secretary's account (First National Bank)				124.44
Petty cash fund				10.00
				\$11,109.37

EXHIBIT D.

MISSOURI STATE MEDICAL ASSOCIATION—DUES
RECEIVABLE AND MEMBERSHIP BY COUNTIES
AS OF DECEMBER 31, 1935

Counties	Dues Receivable				Total	No. of Mem- bers
	1932 and Prior	1933	1934	1935		
Adair						
Schuyler	\$	\$	\$ 8.00	\$ 8.00	\$ 16.00	17
Atchison	....	....	8.00	8.00	16.00	13
Audrain	....	16.00	16.00	16.00	48.00	17
Barry	....	....	....	24.00	24.00	11
Barton	....	8.00	8.00	45.00	61.00	10
Bates	8.00	32.00	40.00	40.00	120.00	17
Benton	....	....	....	....	....	6
Boone	8.00	8.00	24.00	44.00	84.00	40
Buchanan	....	24.00	40.00	112.00	176.00	115
Butler	....	....	....	8.00	8.00	19
Caldwell						
Livingston	32.00	48.00	56.00	80.00	216.00	20
Callaway	....	8.00	32.00	40.00	80.00	16
Camden	....	....	....	....	....	2
Cape						
Girardeau	....	8.00	8.00	16.00	32.00	33
Carroll	8.00	8.00	24.00	32.00	72.00	9
Carter						
Shannon	....	....	....	8.00	8.00	5
Cass	....	....	8.00	16.00	24.00	16
Chariton	....	....	....	....	....	17
Christian	8.00	8.00	8.00	8.00	32.00	7
Clark	....	....	8.00	8.00	16.00	2
Clay	8.00	8.00	8.00	40.00	64.00	32
Clinton	....	....	....	24.00	24.00	8
Cole	....	56.00	92.00	104.00	252.00	38
Cooper	8.00	32.00	32.00	40.00	112.00	19
Dallas						
Hickory-						
Polk	....	....	....	16.00	16.00	19
DeKalb	....	8.00	8.00	8.00	24.00	4
Dunklin	....	16.00	24.00	92.00	132.00	23
Franklin	....	16.00	24.00	24.00	64.00	18

Counties	1932 and Prior	1933	1934	1935	Total	No. of Mem- bers
Gasconade-						
Maries-						
Osage	8.00	16.00	24.00	40.00	88.00	6
Gentry	....	8.00	16.00	24.00	48.00	7
Greene	....	56.00	104.00	232.00	392.00	103
Grundy-						
Davies	5.00	32.00	40.00	56.00	133.00	23
Harrison	16.00	16.00	16.00	16.00	64.00	4
Henry	8.00	32.00	32.00	32.00	104.00	16
Holt	....	....	....	....	....	8
Howard	....	....	....	16.00	16.00	7
Howell-						
Oregon-						
Texas	....	8.00	16.00	48.00	72.00	26
Jackson	....	16.00	16.00	92.00	124.00	594
Jasper	....	....	8.00	44.00	52.00	60
Jefferson	....	8.00	8.00	8.00	24.00	14
Johnson	....	....	8.00	24.00	32.00	20
Knox	....	....	....	....	....	2
Laclede	16.00	40.00	48.00	48.00	152.00	13
Lafayette	....	....	8.00	16.00	24.00	29
Lawrence-						
Stone	24.00	32.00	40.00	56.00	152.00	18
Lewis	....	....	....	....	....	4
Lincoln	....	....	....	....	....	15
Linn	....	....	....	8.00	8.00	8
Macon	....	8.00	8.00	8.00	24.00	7
Marion-Ralls	....	....	24.00	64.00	88.00	32
Mercer	....	....	....	16.00	16.00	7
Miller	....	16.00	16.00	16.00	48.00	11
Mississippi	....	....	8.00	8.00	16.00	6
Moniteau	....	....	....	....	....	7
Montgomery	....	....	....	....	....	7
Morgan	8.00	8.00	8.00	8.00	32.00	3
New Madrid	8.00	8.00	8.00	16.00	40.00	3
Newton	8.00	8.00	8.00	32.00	56.00	15
Nodaway	24.00	32.00	48.00	72.00	176.00	24
Pemiscot	16.00	16.00	16.00	48.00	96.00	17
Perry	....	....	....	....	....	3
Pettis	....	16.00	32.00	40.00	88.00	34
Phelps-Craw-						
ford-Dent	....	8.00	12.00	12.00	32.00	22
Pike	....	....	....	....	....	12
Platte	....	....	8.00	20.00	28.00	16
Pulaski	....	....	....	8.00	8.00	7
Putnam	....	....	8.00	24.00	32.00	6
Randolph-						
Monroe	16.00	24.00	32.00	56.00	128.00	30
Ray	....	....	....	44.00	44.00	13
St. Charles	....	....	....	28.00	28.00	26
St. Francois-						
Iron-Madison-						
Washington-						
Reynolds	8.00	24.00	24.00	48.00	104.00	37
Ste. Genevieve	....	....	....	....	....	6
St. Louis						
County	16.00	48.00	88.00	180.00	332.00	149
St. Louis City	12.00	32.00	72.00	828.00	944.00	1,009
Saline	....	....	....	....	....	24
Scotland	....	....	....	8.00	8.00	4
Scott	8.00	8.00	8.00	16.00	40.00	11
Shelby	....	16.00	24.00	24.00	64.00	8
Stoddard	8.00	16.00	16.00	32.00	72.00	10
Sullivan	....	....	16.00	16.00	32.00	6
Taney	24.00	8.00	8.00	8.00	48.00	3
Vernon-Cedar	16.00	16.00	16.00	40.00	88.00	29
Wayne	8.00	8.00	8.00	8.00	32.00	1
Webster	....	....	....	8.00	8.00	9
Wright-						
Douglas	....	24.00	32.00	40.00	96.00	12
Totals	\$337.00	\$912.00	\$1,408.00	\$3,397.00	\$6,054.00	3,155

Less Prepaid Dues:

Bates	.....\$ 8.00
Buchanan	.....24.00
Cape Girardeau	.....52.00
Chariton	.....64.00
Cole	.....16.00
Howell-Oregon-Texas	.....24.00
Jackson	.....44.00
Lafayette	.....40.00
Montgomery	.....52.00
Nodaway	.....24.00
Platte	.....16.00
St. Louis	.....36.00
St. Louis City	.....96.00
Scotland	.....8.00
Wright-Douglas	.....8.00

Total prepaid dues	.....\$ 512.00
Net balance	.....5,542.00

LADIES AND GENTLEMEN:
YOUR HEALTHApril Radio Programs by the
American Medical Association

April 7. "Middle Age." Speaker, Dr. W. W. Bauer. How to live the life that begins at 40.

April 14. "Summer Camps." Speaker, Dr. Morris Fishbein. How to choose a safe, healthful summer camp.

April 21. "Health and the School." Speaker, Dr. Morris Fishbein. Healthy school children in healthful schools.

April 28. "Infant Care." Speaker, Dr. W. W. Bauer. Sensible health hints for the mother of the new baby.

BOOK REVIEWS

REGIONAL ANATOMY. Adapted to Dissection. By J. C. Hayner, B.S., M.D., Associate Professor of Anatomy, Assistant Surgeon, Flower Hospital; Assistant Visiting Surgeon, Metropolitan Hospital, New York, N. Y. Baltimore: William Wood & Company. 1935. Price \$6.00.

This book presents a concise, well written and well arranged treatise on regional anatomy. It should be of aid to students in the dissecting room and to graduates because of its concise nature and comprehensive index. Emphasis has been placed upon the B. N. A. nomenclature which will add to its value to the medical student. Illustrations have been omitted. This should not detract from the value of the book because it should be used in conjunction with one of the numerous atlases available. L. H. S.

IMMUNOLOGY. By Noble Pierce Sherwood, Ph.D., M.D., Professor of Bacteriology, University of Kansas, and Pathologist to the Lawrence Memorial Hospital, Lawrence, Kansas. Illustrated. St. Louis: The C. V. Mosby Company. 1935. Price \$6.00.

In the field of immunology comparatively few textbooks have been published; certainly in relation to the importance of this field of medical knowledge too few have appeared. A large percentage of those which have been published are no longer satisfactory because the date of publication is some five, ten or fifteen years ago. It is probable that this dearth of textbooks on this subject is due to the difficulties of presentation of the subject and the tremendously large scope of the material. For these reasons any new publication on immunology should be welcomed and is necessarily exposed to criticism.

Dr. Sherwood has written a book in such a form that it may well appeal to the medical student. This is accomplished by presenting the material in brief paragraphs and by giving each paragraph a title. Certainly it makes much easier the finding of any special material which may be sought.

In some ways the arrangement and sequence of chapters may be open to criticism. The book begins quite logically with a discussion of the basic concepts of infection and the host-parasite relationships. But from here onwards there may arise some difficulty in following the sequence of the subjects discussed. The inclusion of discussion of antibacterial sera with that of antitoxic sera does seem to be confusing.

The material included and covered is extensive. In parts this has led to confusion; in parts it would seem

that unnecessary detail is included and in other parts it is possible that some matters are handled too briefly. There is, however, considerable space given to discussion of technic so that the book can be of service in this direction.

It does appear that the section on hypersensitiveness might well have been more extensive. M. S. F.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otolaryngology, Rhinology, Laryngology, Hygiene, and other topics of interest. By leading members of the medical profession throughout the World. Edited by Louis Hamman, M.D., Visiting Physician, Johns Hopkins Hospital, Baltimore, Md. Volume III, Forty-Fifth Series. Philadelphia: J. B. Lippincott Company. 1935.

This volume consists of 17 articles by 22 contributors. There are eleven on medicine, three on surgery and three on recent progress in ophthalmology and otolaryngology.

The first article, "Idiopathic Hypochromic Anemia," by Clough, gives the definition, evidence, symptomatology, etiology, differential diagnosis and treatment. Dr. Clough emphasizes this condition as a definite clinical entity and states that it should be separated from other secondary anemias. The exact nature of it is not understood but the disease is due to a disturbance in the iron metabolism; adequate treatment with iron relieves but does not permanently cure.

The second article is on "Renal Function" by Dr. Louis Leiter. This article deals with three renal function tests, namely; concentration test, P. S. P. test, and the urea clearance test.

He says the information acquired by estimating renal function by these tests is a resultant of several factors, namely: (1) The degree of parenchymal integrity; (2) volume of blood flow through the organ during the test; (3) the activity of compensatory change and (4) extrarenal factors.

The net result is a quantitative value for kidney function at the moment. Precautions in carrying out the tests are mentioned as: (1) Diuresis in an edematous patient; (2) the diet, especially protein and (3) false use of the hydrometer.

He compares the three tests under varying conditions and concludes that the urea clearance test is the most reliable at present. Influences such as edema, protein intake, diuresis, etc., have little effect on the test as devised and corrected by Van Slyke.

The third article, "Chronic Benzol Poisoning," by Selling and Osgood, emphasizes the evidence of agranulocytosis due to administration of preparations such as amidopyrin, dinitrophenol and other drugs containing the benzol ring.

The fourth article, "Digestive Disturbances and Affections of the Skin," by Dr. Samuel Morrison, emphasizes the intimate relationship existing between the digestive tract and the skin. This relationship involves circulatory, nervous, endocrine, toxic and other unknown factors. He emphasizes allergic states hepatic dysfunction, intestinal stasis, pancreatic disease and malignant tumors.

The fifth article is entitled "Relation of Allergy to Migraine" by Dr. Allen. Dr. Allen considers migraine as hereditary but states that in some cases the attacks may be precipitated by foods and may be relieved by withdrawal of foods. Migraine subjects are not all allergic to foods and the allergic and nonallergic should be separated so as to avoid the attacks in the allergies.

The sixth article is entitled "Arteriosclerotic Heart Disease" by Dr. Fred M. Smith.

The seventh article, "Progressive Lenticular Degeneration Associated With Cirrhosis of the Liver," by Dr. Reed Harrow, discusses the relation existing between these two clinical conditions with the history of a case.

The eighth article, "The Diagnosis of Perforated Peptic Ulcer," by Dr. Harry A. Singer, gives a differential diagnosis between perforated peptic ulcer and other conditions with which it might be confused, as appendicitis, gallbladder disease, pancreatic disease, intestinal obstruction, intestinal infarction, rupture of intestinal ulcer and many other clinical accidents and conditions. A splendid article for differential diagnosis.

The ninth article, "Carcinoma Telangiectaticum," by Dr. Weber. Dr. Weber prefers this title which he uses for this pathological and clinical condition but is sometimes known as erysipelas Carcinomatosum. This condition may be associated with the skin conditions "Cancer en Cuirasse" and Paget's disease.

The tenth article, "The Anterior Pituitary, Iodine, and the Thyroid Gland," by Dr. Loeser. The author discusses the neglect of iodine in recent discussion of the pituitary-thyroid relationship. Previous investigators have shown that iodine may cause an increased activity of the thyroid gland; that the anterior pituitary through a hormone stimulates the thyroid gland, and that varying doses of thyroid increases or decreases the amount of thyrotropic hormone in the pituitary gland. By a series of experiments Loeser concludes that the pituitary hormone stimulates the thyroid gland. In response to the presence in the blood of varying amounts of ionic iodine, the hypophysis varies its production of thyrotropic hormone and thus in turn the output of the metabolic hormone of the thyroid is varied, a process which in itself may utilize and detoxify iodine.

The eleventh article is "Rheumatoid (Atrophic) Arthritis and Other Diseases With Joint Manifestations" by Dr. Ralph H. Boots. A classification of joint conditions is given with differential diagnosis and treatment.

This article is the last on medicine, the remaining articles being on surgery, ophthalmology and otolaryngology.

The first article on surgery deals with a "Revision of Our Indications for Cholecystectomy," by Dr. Edmund Andrews. It deals with several different conditions occurring in the gallbladder and closes with conditions indicating surgery. The principal one of these is gall stone colic attacks which he says should have surgery. Borderline cases deserve careful study to eliminate coexisting gastric ulcers and a warning given to the patient that the attacks may recur. Careful dietary regulations are in order for the latter cases.

The second article on surgery, "The Unsolved Problems of Brain Injury," by Lehman and Parker, points out the unsolved problems and urges experimentation so that better results may be obtained in brain injury. Many if not most of these problems can be elucidated by animal experimentation in the laboratory.

The third article in surgery deals with "Practical Aspects of the Therapeutic Problem in Intestinal Obstruction," by Dr. Wangenstein.

The last article in this volume deals with "The Ocular Manifestations of Blood Diseases," by Dr. Tullos O. Coston. This article emphasizes the statement that "the armamentarium of every physician and every intern should contain an ophthalmoscope." This paper deals with the eyeground manifestation of the blood dyscrasias. A splendid and valuable article to the practitioner. H. C. T.

PEDIATRIC TREATMENT. A Manual of the Treatment of the Diseases of Infants and Children Designed as a Reference Work Especially for the General Practitioner and Physicians Entering the Field of Pediatrics. By Philip S. Potter, A.B., M.D., F.A.A.P., Formerly Instructor in Clinical Pediatrics at the Medical School of Syracuse University, Chief of the Pediatric Service of the University Hospital of the Good Shepherd, etc. New York: The Macmillan Company. 1935. Price \$5.00.

The author and publishers have produced a volume which has a mass of information put into closely but clearly printed pages numbering nearly 600. The book is one and three eighths inches thick, is not large nor unwieldy. The plan of the author has been to use a few lines of definition or description for each subject, followed by the treatment, the space for which varies with the importance of the subject.

The book might be called a handy reference work for the medical student, beginning pediatrician or general practitioner. There are no illustrations. The author has a nice arrangement of references at the end of each chapter, and has added an index of authors consulted.

F. C. N.

PRESCRIPTION WRITING AND FORMULARY. The Art of Prescribing. By Charles Solomon, M.D., Assistant Clinical Professor of Medicine, Long Island College of Medicine, etc., With a Foreword by Lewellys F. Barker, M.D. Thirty-two illustrations. Philadelphia: J. B. Lippincott Company. 1935. Price \$4.00.

This book is particularly pertinent in this age of medicine. With the advertising, proprietary medicines, and shot gun prescriptions of this age too many people are being treated with no analysis of the case itself.

Dr. Solomon takes us first in his outline on the art of prescribing into the history of medicine. He pauses for a while in Egypt, then takes us to prescription writing of old Greece and Rome, carrying us on through the Medieval times, with a short comment about prescription writing of modern times.

Next we are taken into practical consideration of the prescription itself. Among the more important things that are stressed are the psychotherapeutic aspects of the prescription, the problem of prescribing proprietary medicines and the importance of using the official name for drugs instead of the trade or popular name, the latter particularly important in preventing self-medication.

He next devotes several pages to the prices of certain drugs emphasizing the importance of using drugs more reasonable in price wherever possible. The importance of preventing any error in the prescription itself is emphasized.

Next the absorption and excretion of drugs is taken up and discussed in an elementary manner. Following this the administration of drugs, one of the most important things in prescribing for a patient, is described minutely and yet concisely.

Prescription writing itself is next reviewed. Among the things which are described are solutions; measurement of temperature; metrology; use of Latin and English in prescription writing; construction of the prescription itself, which is a very important part of the book; posology or dosage, something that is neglected in most of our medical schools; following this are suggestions for prescription writing, which, in themselves, are more than worth the price of the book.

Following this is a formulary which is so complete and concise that it should form a part of the library of all medical men. Among the things that are discussed are drugs having local action, drugs acting on the

gastro-intestinal tract, drugs acting on the nervous system, drugs acting on the circulatory system, drugs acting on the blood and hematopoietic system, drugs acting on the respiratory system, drugs acting on the urinary system, drugs acting on the reproductive system, drugs affecting body temperature, specifics and so-called specific drugs and drugs affecting metabolism and nutrition.

There are three chapters on vaccines, antitoxins, ruses, allergens, and an excellent chapter on organotherapy. For its size this book presents more facts on the above subjects than any other book seen by the reviewer.

H. V. Z.

LABORATORY METHODS OF THE UNITED STATES ARMY.

Edited by James Stevens Simmons, B.S., M.D., Ph.D., Major, Medical Corps, United States Army; Director of Laboratories Army Medical Center, etc., and Associate Editor Cleon J. Gentzkow, M.D., Ph.D., Major, Medical Corps, United States Army; Chief of the Division of Chemistry, Army Medical School. Fourth edition. Illustrated with engravings. Approved by the Surgeon-General of the United States Army. Philadelphia: Lea & Febiger. 1935. \$6.50.

We distinctly recall the first edition of this valuable book which came out shortly after the entrance of the United States into the World War. At that time, we were impressed with the value of the Army Laboratory Manual. This little book has now grown to the fourth edition. It is a compact book of over one thousand pages. The editorial direction by Major Simmons could not have been placed in better hands. The book is extremely valuable for those who desire a complete laboratory manual with the data assembled in compact form easily and authoritatively available for quick reference.

The contributors are all medical officers of the United States Army with the exception of three—one by Major Curry, of the Medical Reserve Corps, one by Captain Canby, of the Dental Corps, and another by Komp, Sanitary Engineer of the United States Public Health Service.

It is very difficult to point out any special chapter of this book as deserving of special mention because all the chapters are exceedingly well done.

The chapter on clinical pathology is very complete. It gives full details of kidney and liver function tests as well as the various tests for pregnancy. Emphasis is placed upon gastric and duodenal fluid examinations.

We were very much interested in the chapter on chemistry by Major Gentzkow and Captain Wakeman. Major Simmons and his coworkers who have written the chapter on medical bacteriology have done this in a thorough manner with the efficiency of Army medical officers who have had a tremendous amount of experience in this line of work. Major Simmons has also written an excellent chapter on the Rickettsiae. Majors Ash and Cornell, in Chapter 9, have written an excellent contribution on pathology. An unusual chapter is that by Lieut. Colonel Kelser and Major Reynolds on special veterinary laboratory methods.

The contributions on tropical diseases are excellent. Particularly useful is the contribution by Komp, the well-known malarialogist, on dissection of mosquitoes for malarial parasites.

The Army is to be congratulated on having a group of officers who can produce a book of this kind. It deserves a place in the library of any laboratory worker or medical man who wants to be informed on modern laboratory methods.

R. B. H. G.

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THE ROLE OF MEDICINE IN THE PROGRESS OF MANKIND

PRESIDENT'S ADDRESS

EDWIN LEE MILLER, M.D.

KANSAS CITY, MO.

For seventy fruitful years the world's physician has been faithfully and scientifically pursuing learning and interpretation of the facts concerned in medical science. He has faithfully applied this knowledge to the altruistic end that mankind might be released from the terrors and limitations of disease.

Scientific medicine was derived as an applicable response to Lord Bacon's edict that the study of things in man's common environment was the medium whose analysis would furnish the elements necessary to establish a gain in man's intellect, progress and happiness.

The first microscope had been invented in the thirteenth century. It was after Lord Bacon's time, however, to become the instrument whose more thorough application in the study of things that surround man, and even of the structure of man himself, was to be compensated by the establishment of facts whose interpretation led to a finding of the actual truth. The power of the lentil-shaped piece of glass to magnify objects led not only to an understanding of the nature of most natural processes and materials but of the cellular structure of man himself. Pursuant in his studious activity, there later came the immortal discovery of Pasteur and the profound application of his discoveries by Lord Lister to the eventual end that a tireless scientist has evolved so massive an amount of information concerning the nature of disease and its control as to confound the most encompassing brains. Medicine has made such great progress since 1867 as a pure science in affecting the cause, effect and control of disease, that the application of processes derived from these findings has, in these three score years and ten, increased the

span of expectant life from 36 to 59 years of age. The microscope therefore, as applied to disease and its control, is to be given a place in the history of man's progress that can only be approached in importance by the compass, gunpowder and the printing press in affecting the status in which civilized man today finds himself.

When James Watt invented the steam engine to supplant the muscular power of man and beast, a new cycle of economic events scientifically had ensued. The engineer and chemist and physicist took up the study of many things related to man's security and physical well-being until, from the results of all scientists' accomplishments, man has now suddenly found himself placed comfortably in a pleasurable world with twenty-three added expectant years to live painlessly and, therefore, to enjoy himself.

In all ages since the Egyptians first started the feature which we define as recorded civilization, the elements of progress have evolved very slowly. Since Pasteur, however, the main forces which limited man's progress and seemed unsurmountable have been largely conquered. This has been accomplished in the span of a single lifetime. True, scientific processes have been applied to the interpretation of the structure of all forms of natural matter, and the conclusion attainable has been limited only by the lack of ability in man's intelligence.

To what use has society, and by society I mean the conglomerate citizenship, applied this enormous amount of information that the scientist has evolved? It is unfortunate, but very characteristic, to record that the body politic at first resented the confounding amounts of scientific information. It decried its authenticity. It berated its applicability and, in the end, grudgingly accepted the natural rewards that the scientists' contributions had to offer him. That of course is the natural reaction of an ignorant man. If an invention or a medical discovery was found applicable to free men from back-breaking labor, or free them from a conquerable disease, did members of society ever acclaim

the prophet who performed such a miracle? They assuredly did not! When exotoxins were demonstrated and fatal tetanus and child-destroying diphtheria became controllable diseases, did society admit credit for these conquering accomplishments? It vehemently opposed them. Why? Not because of the skepticism which demands proof, and having proof, believes and accredits for man's repelling doubt is never derived from the depths of his intelligence but from the wells of his ignorant intolerance.

In spite of hazards presented by the outbursts of lay ignorance, such outbursts being psychologically explainable in man's innate mental desire to accept the unprovable mystic circumstance as opposed to the acceptance of the proven fact, medicine and all its allied sciences has prospered without fear but with little favor save that derived from the scientists' knowledge that one day when man has profited largely from his scientific findings he will use this knowledge, if he will not acclaim it. Fortunately, a successful scientist's reward has been not the acclaim of a liberated populace, but the spiritual enrichment that comes from purposeful attainment.

In spite of the unwilling and unrelenting forces that would have inhibited its establishment the science of medicine has largely, through the medium of the microscopical study of disease, established itself as an important and necessary mechanism in the advancement of man's progress. A vast army of physicians has been born and exists largely through man's necessity to have applied to the maintenance of his well-being those principles which the great medical science has to offer for man's protection, but which man himself cannot apply.

Year by year the competence and requirements demanded of this disciple of medical science have been increased. Society by law, and medicine by the requirements of its unnatural growth, have substantiated so high a goal of professional attainment that few men have either the mental capacity, the means or the inclination to master the curriculum that medicine now requires in the education of a modern physician. Nine or ten years of most exceedingly difficult study are now thought to be necessarily completed after high school graduation to equip a physician to practice modern medicine. An increasingly rigid standard of application during the medical years of study tries the very bodies and brains of the medical applicant. Moreover, we are picking the very best brains available in our great universities to study medicine and this is found proper, particularly if these brains substantiate the proper character of the applicant. Two fundamental requirements

of a doctor are found to be brain capacity and sterling character.

No other profession has established so difficult a curriculum for its graduates. One more year is required by the best of our medical schools to obtain a medical degree than is required for a doctor of philosophy to obtain his high degree.

The modern medical graduate has also had a very thorough college education before entering the medical course of study. Most of these students have studied the basic principles of economics, sociology, ethics, philosophy, psychology and even the structure of government and are thereby, it seems, equally qualified, as compared with the average member of the body politic, to evaluate not only the medical but most of the social ills of their fellow men. Their profession does not necessarily divorce them from a lay participation in the discussion of man's social ills. The very cosmopolitan nature of their education qualifies the doctor to participate in all such considerations. Too often, however, it is said, "Oh, he's just a dreamy doctor. What does he know about such important things as these we are about to discuss?" By education, however, the physician is found to be one of the best thinking members of the body politic and he must perform and shall insist hereafter in performing his citizen's part in the consideration of the problems that illy affect his fellow man. He shall, and must, sit in the cabinet with the economist, the sociologist, the politician and the business man when they are considering any change in the rules of the game of life, and of government.

To a doctor, the function of man's government is to regulate the demeanor of citizenship and, incidentally, to patronize man's social, economic, physical and mental security. It rightfully becomes the duty of the politician to formulate the laws. It is, however, the scientists' duty to affirm their necessity when such laws relate in particular to the field of the scientists' accepted expression. Any consideration of the care of the sick man, therefore, is the responsibility of men who, by application according to accepted standards have qualified themselves to do this special service to man. It follows that the manner and method which shall be evolved for the care of the sick is to be determined by the physician and not by the sociologist, the economist, the business man or even the politician. Such work is the job of the medical profession and they eventually shall perform it in a manner that will not prejudice the laymen or discredit the doctor.

The medical citizen prescribes to the fundamental law that man born in the world has a

right to live. He has a right to live if he works, says the economist. He shall have the right to work and enjoy himself, says the sociologist. If government shall act under such hypothesis we, as physicians, will perform faithfully our function to man, but in the terms and conditions we alone have the right to dictate. Society must understand that the service potential in a doctor is not society's right to have, or even to direct. Society did not pay for this potential power in money, or hours of study or financial forgoings. This service must be recognized as no more society's right than the land, or the electric service, or the groceries, or the clothes or the automobiles that man uses, because he pays for them. Because a zealous medical profession in the past has often overstepped the bounds of its obligation in the care of the indigent sick is no reason why the whole public is entitled to an increasing extension of free or poorly paid service, unless the physician sees the need for such extension. What I mean to emphasize in the discussion of the American sick man's problem is that some lay organization or person shall not, now or ever, usurp from the profession of medicine the power of letting the physician determine who shall or shall not be the subject of professional attention. The reason we so jealously guard this privilege is that no outside organization knows what the profession of medicine owes humanity in the feature of free or other service. The obligation we logically recognize in this respect is that the citizenship owes the sick man the materials necessary to meet man's indigent sick needs. As physicians, we accept our mutual citizenship responsibilities even in this respect. As physicians and citizens, we are fully capable, by intelligence and training, of describing our limitations. The boundary of our professional ethics and responsibilities are not only broad but are well and long established, not only during the present hours of social distraction but in all ages, even since the time of Hippocrates.

Scarcely a person, no matter how uneducated, does not feel the force and admire the spirit which activates and guides the steady, unrelenting and unselfish progress and application of the science and practice of medicine. Having established and, to an unfailing degree practiced, the highest form of practical, unselfish ethics for over 2000 years, we are loathe to accept the justice of all lay critics for indicting us, at any hour in history, for not wanting to do always what they demand. When such critics are representatives of less mature sciences, we do not believe they can validate themselves as our directors.

It must be remembered that medicine as a

science has prospered under all forms of government and social relationships. Medical men are only interested in the science of government as they are represented in a government's citizenship. Laws made by politicians to discredit medicine have not and cannot permanently inhibit the security of our science. Medicine goes progressively on, even though a sovereignty annuls itself. It is willingly admitted that both government and medicine have prospered where mutual confidence and understanding have been perfected.

The demeanor of the average man who practices scientific medicine is ever so outstandingly high that we do not see the need of regulation of medicine's demeanor, but we can rightfully demand sustenance in the attainment of its unselfish purposes. We might, ourselves, conceivably indict the American form of government in so far as it relates to the administration of the governmental application of the medical science. We have not yet been considered seriously important enough to have our equal and deserved place in the cabinet at Washington, where labor, commerce, law, plants and cows and material resources all have appointed and respected representatives at the very heart of the American government. It is shamefully admitted that in respect to man's public health administration there is not now one bureau which is possessed of the power and responsibility similar to that effected for less important necessities of the American living. We need, and hereby continue to demand, equal representation in the public health administration of man and in other adaptable functions relating to medical science, as that now differentiated for other departments admittedly less necessary but now existent and certainly better administered. This position is sanely derived from the knowledge that better and more purposeful administration of our applicable laws in matters of public health could effect a return, if reduced to dollars and cents, sufficient in savings to our body politic to equal in amount that normally spent to carry on all the functions of every department of government. Five billion dollars worth of lives and time loss are sacrificed every year, both of which could be largely prevented if the government should ever seriously consider that well-administered, scientific public health could effect such a gain for its people.

To the average statesman this great loss is due to an act of God, whereas such neglect is permitted to go on owing to the circumstance that the otherwise inspired fathers of our Constitution could not anticipate in the formation of the structure of our great Constitution, such as the work of Pasteur and other inspired con-

tributors to the safety of mankind. Undoubtedly the United States government needs, and will eventually have, an independent Department of Public Health. It shall then be administered by physicians scientifically and shall concern its activities wholly with matters of public health. It cannot, will not and must not concern itself with a single example of private health. It will be found that an average administration of its function will benefit the man and his children as much as the Department of Agriculture can protect and benefit the hog or corn the man may own.

Our politician will some day cease to interfere and compromise the practice of the science of medicine, and will concern himself properly with substantiating the security and practice of the laws of public health. It is not conceivable that a thinking people care more for man's material possession than they care for man's life security.

Much more could be logically and gainfully said for the establishment of scientific relations of government and medicine. However, there are sources of human endeavor which seek the privilege of limiting development and application of our science.

The idea of the times, in some men's minds, seems to be to incorporate our profession and what it has to offer as a necessary and profitable appendix of the corporate world. We have therefore resented this interference and feel the necessity for the practice of medicine to stand, even here, on its own feet. As physicians, we are independent and answerable to ourselves and not enthralled by the exigencies or accomplishments of the business world. As physicians, we have held steadfastly to a higher standard of ethics since the days of Hippocrates. As we developed a mature science on the basis of Baconian methods, we have made more practical advancement than any other structure in society, but have found therein no element of excuse for the abandonment of these fundamental laws of ethics. We have contributed comparably much more than our part in making man a happier being and cannot bow down to business. Let it be said that we have performed this service with little material aid from the economist, the sociologist, the business man or even the politician. Our work is only started and we shall brook no continued interference from any source or agency which does not appreciate what the physician has really accomplished. Medicine stands on such sure ground of spiritual accomplishment that we can well say to our lesser interfering brothers, "Better then, go and do thou likewise."

Serious as are agencies which deem it a privilege to inhibit the freedom of medical practice

in its pursuit of the ultimate ideal, there always has been, and there are now, renegade forces within our own organization that give cause for apprehension. There are now, as there always have been, members who have been permitted to master the details of medical practice who perform the art for the money there is in it. These members represent the cancer in our profession. There is rightfully no place for them. We must, however, insist that the laborer in any field is worthy of his hire and since physicians spend so many years in study, so much money to attain that end of proficiency now legally required, they really are entitled to a stipend comparable to that given any member of any profession for any personal service performed. Nevertheless, some critics say we cost too much. We vociferously deny the comparable validity of such criticism. Have we not often observed that a lawyer recovers, in a little damage suit for personal injury, a reward twenty times as large as his client's doctor is able to extirpate for having saved the worthy client's life? Such situations have chagrined many capable physicians. There is no justice in our position under such circumstances, hence we are peculiarly sensitive to criticism when anyone says our usual fees are exorbitant.

The injustice of performing scientific medical service for corporate business, at prices not commensurate with the worth of the service, is a situation also arousing our indignation. These are all examples of economic injustices already being perpetrated on members of our profession. They will continue to exist only so long as we shall permit them to exist. The profession's emancipation from such practices rests entirely in what you, as organized members of medicine, see fit to do with such derelictions. When the burden of such practice becomes unbearable, the yoke will be shaken. In the sanctity and perpetuity of our present organization rests the solution of our many forms of menace. We shall be loathe to use the weapons already at hand to defend ourselves, but if conditions become intolerable for the doctor we can recruit an undefeatable resistance. God forbid that medical social security shall ever require us, as apostles of peace, to ungird our loins.

In Missouri we have accomplished, as physicians, a unity of purpose, a confidence in the justice and certainty of our opinion, to cope with any situation that can arise in the economic relationship pertaining to the practice of medicine in the solution of the sick man's problem in our great commonwealth. We have the personnel to meet the necessity of any but the most unusual medical emergency. Missouri doctors as always, accept the responsibility of physicians in the care of our state's indigent sick. We

must require, however, that society assume its part in providing the costly materials necessary for their indigent sick's care. The only compensation we have had, or will expect, is joy in a good job well done. In return for this unselfish position and activity, we ask only our constitutional right to pursue our practice along lines dictated by the laws of medicine as a science, and not in the emotionally derived plan of some half-educated, so-called social expert.

One social situation in Missouri is a matter for the concern not only of her physicians but of her entire citizenship. There is a definite shift in the geographical distribution of her physicians. The trend of the present time is for the young physician to locate in the large centers of population. Nearly one half the membership of the State Medical Association is represented by members who are located in St. Louis and Kansas City. Half of our doctors in Missouri are available to about one third of our population. It is the opinion of most of us that about two thirds of the doctors located in rural communities are close to, or above, 60 years of age. We naturally are alarmed that the so-called country doctor who has ever been the core and sinew of decent ethical medicine in Missouri is doomed to a possible extermination. Bad roads and some other compromising factors only can account for this young doctor urban hegira. If this practice continues there is conceivably a time when a doctor will be truly wanted and appreciated in the rural community. I am sure, however, that the rural community will eventually make their necessity so attractive that they will be rewarded by a medical graduate whom they can trust and properly appreciate. Never before has such a situation which has such serious potentialities as this one automatically arisen. I have no fear that this complication will be medically met. It may require the building of better roads. Surely the public will make it profitable not only in financial returns but in spiritual return, for the doctor and his family to inhabit the rural areas. In that event, such locations will never suffer the want of efficient medical care by the best qualified medical personnel.

Eventually, society will discern that every situation relating to the social organism has an established medical background to assure success or failure. Canals cannot be built, lands cannot be developed, business cannot be run, universities cannot maintain the end they seek unless they recognize and apply the rules in the game of social contact that medical science has ordered. The greatest social and economic loss man has to endure comes from sickness and death that accompany pandemic infection which the medical scientist does not yet know how to

control. Influenza, for example, took, it is said, one of every hundred lives in the world's population during the 1918 epidemic. This loss of life was 20 per cent greater in one year than the loss of life caused by the weapons of war used during the four years of the world's greatest martial catastrophe. The needless loss of life through bullets and gas, etc., is always less than the loss of life from released disease which, like vultures, follows all distracted bel-ligerents. To men who have the scientific viewpoint the wanton waste of money appropriated by laymen to make or avoid war is inexcusable. One tenth of the stipends so spent, if appropriated toward control of the unseen enemies of man, would effect an abundance of material things the lack of which commends an unseeing nation to resort to war for the profit that thereby may be obtained.

In the fulfillment of attainable medical knowledge, man has and shall effect his greatest progress rather than in war. Science, as applied to every field of man's environment, has given man an abundance of material to use for his sustenance and benefit. So much, in fact, can he produce of material things that he is no longer concerned with the matter of their sufficiency, but in effecting a humane distribution of these things that man can use to effect his security and happiness. This state of abundance is the product of the followers of Watt, and great credit is due him.

The world is not in the present economic catastrophe because of the profligate attainments of the science of production and protection, but because man's social, economic and political leadership has not established their functions on as solid a logic as production and medicine. Man finds himself able to live a long and happy life but is now being denied that privilege because of the lethargy of his social, economic and political leadership. These failing leaders cry that they are scientists but produce nothing of usable human value to this doctor-preserved human who hungers for the productive benefit all about him. Yet we still spend a majority of our income to pay for war when the instruments of education cry for the lubricant of sufficient appropriation to effect the further necessary means and methods for man's continued progress.

Gentlemen, the science of medicine has performed its full assignment for the uplift of humanity. In seventy years, medicine has recorded more usable unselfish contributions than any scientific forces purposing to reward an advancing world with a healthier and happier man.

You are, and rightfully should be, proud to be the representative disciples of the great science you profess. Builded it is on the solid

rock of the established fact. Each of you has done your work well and I congratulate this great commonwealth of Missouri in respect to the quality and unselfishness of its present-day physician. Missouri has a physician who conforms, even with the new weapons of modern scientific medicine in his hands, to the spiritual requirements laid down in the immortal Oath of Hippocrates which has ever been the rule and guide of all physicians in the enormous accomplishment which scientific medicine has contributed to man's progress.

It is well that we now review the content of that immortal and inspired instrument that has so much to do in the final estimate of a true physician's character.

HIPPOCRATIC OATH

I swear by Apollo the physician, by Aesculapius, Hygeia, and Panacea, and I take to witness all the gods, all the goddesses, to keep according to my ability and my judgment the following Oath:

To consider dear to me as my parents him who taught me this art; to live in common with him and if necessary to share my goods with him; to look upon his children as my own brothers, to teach them this art if they so desire without fee or written promise; to impart to my sons and the sons of the master who taught me and the disciples who have enrolled themselves and have agreed to the rules of the profession, but to these alone, the precepts and the instruction. I will prescribe regimen for the good of my patients according to my ability and my judgment and never do harm to anyone. To please no one will I prescribe a deadly drug, nor give advice which may cause his death. Nor will I give a woman a pessary to procure abortion. But I will preserve the purity of my life and my art. I will not cut for stone, even for patients in whom the disease is manifest; I will leave this operation to be performed by practitioners (specialists in this art). In every house where I come I will enter only for the good of my patients, keeping myself far from all intentional ill-doing and all seduction, and especially from the pleasures of love with women or with men, be they free or slaves. All that may come to my knowledge in the exercise of my profession or outside of my profession or in daily commerce with men, which ought not to be spread abroad, I will keep secret and will never reveal. If I keep this oath faithfully, may I enjoy my life and practice my art, respected by all men and in all times; but if I swerve from it or violate it, may the reverse be my lot.

1032 Professional Building.

OBSERVATIONS ON TREATMENT OF CHRONIC ARTHRITIS WITH VITAMIN D

Emil G. Vrtiak and Ross S. Lang, Chicago (Journal A. M. A., April 4, 1936), treated twenty patients suffering from chronic atrophic arthritis with massive daily doses (from 150,000 to 250,000 U. S. P. units) of vitamin D. Two patients showed marked improvement, six moderate improvement, four slight improvement and eight no improvement. These results were not unlike those obtained with a number of other methods of treatment or with methods used to produce only symptomatic relief.

OUR COMING YEAR

ADDRESS OF PRESIDENT-ELECT

ROSS A. WOOLSEY, M.D.

ST. LOUIS

I am appreciative of the honor conferred upon me by the Association in serving as your President-Elect for the last year. I fully realize the responsibility incident to the office of President which it will be my pleasure to fill during the ensuing year. As a member of your Committee on Medical Education and Hospitals, as your Treasurer and President-Elect, I have been in intimate contact with the officers, the Council and the activities of our various committees. The reports of the various committees as presented to you on yesterday indicate much activity during the last year and they deserve much credit for their accomplishments. This intimate relationship will be maintained more closely than ever during the ensuing year. Frequent conferences will be held with the chairmen of these committees. Headquarters office is where serious problems that confront county medical societies should be referred. I shall visit our headquarters office as frequently as may be necessary and you may without hesitation refer to this office for advice, information or counsel at any time and as often as you please, being always assured your request will receive the prompt and sympathetic attention of your officers.

The responsibility of giving adequate medical care to the people of Missouri at a price they can afford to pay is ours. We must prevent it being made the responsibility of any other group, lay or governmental. If ever in the history of our organization we should be united, that time is now.

No doubt our State Legislature which meets in January of 1937 will again be called upon to adopt legislation inimical to the public health as well as to the interest of our own profession. May I impress upon you the necessity of close cooperation, especially in legislative matters. If your local society has no standing legislative committee, see to it that a member is immediately appointed by your society to act as an auxiliary member to our Committee on Public Policy. This is equally necessary when legislation is sponsored by the Association.

The Social Security Act passed by Congress enables the several states to make more adequate provision for the aged, the blind, the dependent and crippled children, maternal and child welfare and public health. The members of the State Board of Health and the Commissioner of

Read before the 79th Annual Meeting of the Missouri State Medical Association, Columbia, April 13-15, 1936.

Health deserve our sincere commendation in attempting to work out plans under these benefits which will be to the mutual advantage of the people and the medical profession in so far as medical service is concerned. This pleasant and most necessary cooperation between the State Board of Health and our Association will be maintained.

I have no specific recommendations to offer. I shall energetically and enthusiastically endeavor to carry out such recommendations and resolutions as may be adopted by the House of Delegates of this Association. In this endeavor I earnestly solicit your cooperation and confidence.

Frisco Hospital.

ESSENTIAL HYPERTENSION

WALTER BAUMGARTEN, M.D.

ST. LOUIS

The term essential hypertension has come to designate that overwhelming percentage of cases in which elevated blood pressure is the salient feature for which we know no adequate ultimate etiology. The name "essential" implies this unknown origin. The studies of the last forty years initiated by Clifford Albutt, Huchard, and Janeway, and with the advent and development of the sphygmomanometer have led to the recognition of this large group which is not dependent on preceding inflammatory disease of the kidney or on urinary obstruction, nor on endocrine or metabolic origin. The hypertension associated with inflammatory renal disease was recognized by Bright and the later clinicians of the 19th century. This form together with those forms more recently recognized as of endocrine or metabolic origin, account for only a small portion of the total number of cases of hypertension.

Essential hypertension is a disease that develops slowly over a period of many years and for a long time remains symptomless. The absence of symptoms forms one of the difficulties in its detection, as the individual remains unconscious of any abnormality, unless it is discovered accidentally as in a life insurance examination or a so-called periodic physical examination. It is one of the best justifications for the periodic examination. It begins roughly in the fourth decade of life or later, in contrast to the renal hypertension which begins in association with renal inflammatory diseases in the second decade. It is often hereditary and marks an often recognized onset of familial deterioration after the age of forty. In many

cases the urine remains little or not at all involved throughout the course of the disease.

The disease begins as an exaggeration of vasomotor response to normal stimuli; stimuli to which all persons are exposed in life and to which most people adjust themselves. The primary and immediate result on the circulatory system is an increased contracture of the musculature of the middle coat of the smaller arteries (arterioles), which is purely functional. Frequent repetition and prolonged periods of such stimulation lead to hypertrophy and a greater permanent tonicity of the muscle coat. The result of contraction of the arteriolar musculature leads to a reduction of the lumen of the arteriole and to a reduction of the total caliber of the peripheral circulation as compared with total normal caliber. The volume of blood to be propelled remaining the same, this means that a higher head of pressure must be maintained during the periods of tonic contractions of the arteriolar muscular bed. When by frequent repetition such increased tonicity slowly leads to hypertrophy of the median coat of the arteriole it becomes progressively more difficult to relax the increased tone, and the head of pressure tends to remain permanently high.

Up to this point the mechanism of the elevated blood pressure has remained purely functional. It is an important point because it marks a stage in the disease in which because it is still purely functional no irreparable structural change in the circulatory system has occurred. Hypertrophy alone is a reversible condition and is susceptible of management. This is therefore the point up to and including which much may be expected from treatment.

When hypertrophy continues and is maintained by whatever source of stimulation, a period is eventually reached when the muscle cells fatigue under the persistent excess of work. The result of continued fatigue is always deterioration, followed by atrophy. The atrophied cell becomes replaced by connective tissue which in an effort to maintain the strength of the weakened portion of the vessel is often laid down in excess. The portion of the vessel so affected has then become fixed in caliber and is not susceptible of relaxation. This then forms the stage of fibrosis with a fixed elevated blood pressure which cannot be influenced by remedial measures. It is the stage of arteriolar sclerosis, i. e., arteriolosclerosis. Such a process is not uniform throughout the body but it is sufficiently widespread to influence the level of the blood pressure. It tends to become a selective development in various well recognized areas of the body.

The final development of the sclerotic stage may be a matter of years or of decades after the

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inception of the original functional disturbance. Together with the period of purely functional hypertension it forms the common basis or unified background for damaging consequences in other organs, the selected areas just referred to. An important consequence of such arteriolar changes is an impairment of the nutritional exchange in the tissues, including respiratory exchange of oxygen and carbon dioxide. This leads to atrophy and impaired function of the areas involved. Aside from eventual general deterioration of the skeletal muscles, these areas consist of the kidneys, heart, brain, spleen, pancreas and liver. The extent to which these organs are involved varies greatly with individuals and with families, and thereby creates the secondary picture which the general disease assumes. The term secondary is justified; for no matter what the final preponderant localization is, it is dependent on the underlying process described earlier. Almost universally the renal arterioles become involved. Paradoxically, this involvement makes few or no early signs and infrequently leads to a preponderant renal picture in the end. A second vulnerable area consists of the arterioles of the cardiac coronary system. Here the nutritional changes become more prominent as they lead to atrophic loss of cardiac muscle cells with connective tissue substitution. Added however to the impaired nutrition of the cardiac muscle is the general increased burden of work thrown on the heart by the hypertension. This results at first in cardiac hypertrophy before time has permitted coronary sclerosis. Eventually, with progressive development of fibrosis, the cardiac reserve diminishes progressively until cardiac decompensation dominates the picture. For this reason, though sclerosis of the coronary arterioles occurs less frequently than sclerosis of the renal arterioles, about 60 per cent of hypertensive deaths are cardiac.

In the cerebral vessels, arteriolar sclerosis also appears less frequently than renal sclerosis, but its results due to malnutrition of the cerebral tissue range from periodic aphasia, convulsions, loss of mental acuity, to definite mental deterioration. With these cerebral changes is associated the ophthalmoscopic picture of vascular thickening and retinal degeneration. Where a sclerotic cerebral vessel degenerates sufficiently a cerebral hemorrhage may be the first evidence of cerebral vessel disease.

A similar degenerative result is shown in the glycosuria which may follow arteriolosclerosis in the pancreas with its involvement of the islands of Langerhans (degenerative or senile diabetes). In the spleen the sclerotic process seems to be clinically unimportant.

The foregoing description shows that there are two general phases of essential hyperten-

Table 1. *Clinical Stages in Hypertension With Corresponding Pathological Conditions*

Essential Hypertension	Corresponding Pathological Condition
Two Phases of Development	
Functional	
1. Period of fluctuating blood pressure	1. a. Exaggerated vasomotor constriction following normal stimuli
a. Irritative	
Frequent normal periods	
b. Spastic	b. Hypertrophy of median coat
More persistently high pressure but still variable	
Organic	
2. Period of fixed blood pressure	2. Degenerative vascular changes leading to fibrosis
Sclerotic or fibrotic	
Persistently high diastolic pressure	

sion. The first and underlying phase consists of an abnormal response to normal stimulation of the musculature of the arterioles, which eventually results in hypertrophy of the media of these vessels. This is a process widespread enough in the body to provoke a general rise in blood pressure.

The second phase consists of the degenerative results of the first phase in which a previously functional condition becomes an organic pathological condition. This second phase includes not only a generalized vascular degeneration but frequently localized degeneration of vascular areas, such as those of the kidneys, the heart, the brain, and clinically less important areas.

The clinical stages in the disease coincide with the stages of physiological abnormality and the eventual organic pathological changes that have been described. They may be stated as follow:

1. At the onset the blood pressure is very variable and frequently normal. It represents the first stage of overstimulation that accompanies repeated emotional stress or a toxemia such as a developing thyrotoxicosis. In this stage the hypertension often returns to normal on elimination of the cause of irritation.

2. With persistence of the irritation a habit of hypertension increases and a definitely spastic stage develops. The blood pressure still fluctuates but becomes more persistent and has fewer periods of normal pressure. With more prolonged muscular spasm, hypertrophy of the medial coat of the arterioles becomes established. In this stage removal of the source of irritation does not alone suffice but conscious periods of rest must be established which will promote a diminution of the hypertrophy.

The two foregoing clinical periods therefore correspond to the stage of functional derangement.

3. The third clinical stage coincides with the degenerative stage in the pathological changes in which the arterioles become definitely fibrotic. The peripheral resistance has become an organic entity and with it the diastolic blood pressure

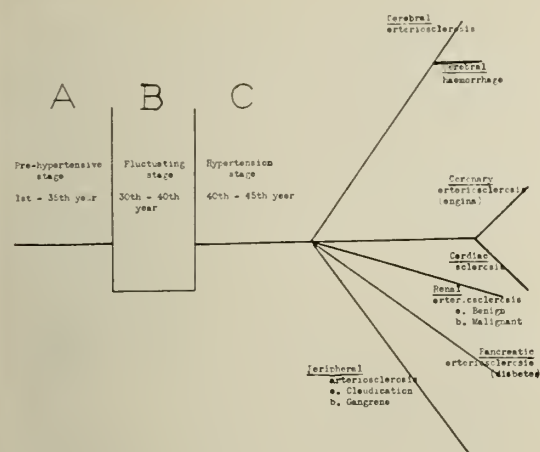


Fig. 1. Stages of hypertension and organic sequelae (modified after O'Hare).

has become fixed at an elevated level and does not respond to therapeutic measures. It may be termed the sclerotic stage and includes all the possible organic consequences of the disease.

The prognosis in a given case of essential hypertension depends therefore on an estimation of where, in this clinical-pathological grouping, it may belong. It is essentially an estimation of the ability of the arterioles to relax. As long as the blood pressure can be shown to fluctuate in response to rest and to vasodilating drugs there is hope of accomplishing some improvement. A fixation of the blood pressure especially of the diastolic pressure at a permanently high level means the stage of irreparable damage.

The simplest tests of the ability of the vessels to relax are twofold: (1) Observation of the blood pressure before and after reasonably long rest in the recumbent position; (2) the response after exposure to the more efficient vasodilators, especially amyl nitrite. Further information can be obtained from the urine concentration test, i. e., the power of the kidneys to concentrate the urine when little fluid is given (available). In other words the clinical checks that we have on the probable outlook for an individual and the present stage of his disease are, (1) the degree of fluctuation of the diastolic pressure as observed over a long period of time, and as influenced by rest; and (2) the response of the diastolic pressure under amyl nitrite. The approach of the diastolic pressure to normal or a swing below normal would have favorable significance.

This conception of essential vascular hypertension leads to a rational basis for the treatment of the disease. It is at once obvious that the phase that offers any hope of real cure is the first one. In this phase the changes are still functional and susceptible of elimination. After fixed degenerative processes have developed in

the vessel walls any hope of eradication of the pathological process has passed, and the most that can be expected of treatment should center about the avoidance of further damage and the maintenance of what function remains. When such function in any one of the vulnerable organs becomes inadequate to the needs of other organs or the organism as a whole, rapid deterioration sets in, terminating in death.

The therapeutic problem in the first phase consists of the discovery and elimination of the sources of stimuli to which the vessel walls respond overactively. Constitutional susceptibility as an underlying factor in this stimulation is a hereditary background which often defeats attempts at management and dooms whole families to early exitus. This may be partly due to "poor rubber" in the vessels, as Osler put it, but is often enhanced by temperamental and emotional eccentricities. It is most important that these factors be discovered and corrected if possible. This calls for much time and much tact and varies in almost every case. Such sources are rarely confined to a single factor. It is, nevertheless, the first step in the successful management of the disease. The correction of these mental factors and faulty habits of both work and play is the foundation of rational therapy. The return to a normal degree of reaction to these stimuli is of fundamental importance. Of physical abnormalities that may provoke vascular stimulation, intoxications of various kinds should be looked for. These include the infections, improper food and overeating, the metallic poisons, thyrotoxicosis and oral sepsis.

The accomplishment of these objectives in treatment requires efficient changes in the habits of work, of play, and of rest on the part of the individual. When by good fortune the disease is discovered in its early remedial stage the individual is usually in his active and responsible years. It may be a delicate matter to accomplish the necessary changes and yet maintain the individual's earning capacity. Every effort must be made to acquire as much bodily rest as possible; long hours in bed, a break in the middle of the day, such rearrangement in work, the delegation of responsibility, and freedom from annoying or exacting detail as may be possible. It should be remembered that overeating is a form of overexertion quite aside from the appropriateness of the quality of the diet. Recreation should avoid excitement and above all be noncompetitive. Games of chance should have no money stake and be purely platonic if indulged in at all. It is here that the individual may need reeducation of lifelong habits and desires. Constant novelty in experiences must be avoided. The stimulation of large gatherings is usually undesirable. Physi-

cal exercise must be dealt with in the same way. If games are to be played the participant must divest himself of the urge to win and make the exertion the paramount pleasure. Above all, the degree of exertion should be kept slight enough not to raise the blood pressure in itself. Moderate walking is usually the safest exercise as well as the one most easily regulated.

To be effective, such a plan must be persistently carried out over a prolonged period. The prolonged rest, physical, psychic and dietary, so attained may relax the hypertonic contractions of the arteriolar musculature, thereby allowing the muscular hypertrophy and the irritability to subside. To maintain these desirable results this regime must become a permanent way of life. Time is an essential element in continuous and prolonged arteriolar rest.

The relation of drugs to this scheme should be purely adjuvant. So far, no drug has been discovered which is a continuous vasodilator. All drugs fall short of the goal of maintaining a continuous effect. The arterioles must be protected against the burden of continuous or frequent excitation, and any drug used should support the general program of quiet and equanimity. The most satisfactory drug therapy to this end consists of those sedatives (bromides, phenolbarbital) which help to create a quiet temperament, and to avoid undue reactions to external stimuli. In this way they, too, will contribute their share to arteriolar muscular rest. In this consideration of remedies, both physical and medicinal, the vascular tree must still be elastic and amenable to functional improvement. In the recently developed surgical interference with the sympathetic nerve trunks it is most important that the selected case is still within the elastic stage. Failure to recognize this requirement leads to failure to obtain favorable operative results.

The management of the second phase of hypertension, the phase of organic injury, resolves itself into two portions. The prophylactic treatment of the first phase should be instituted in the hope that further vascular damage may be minimized. As already said, this can only be a hope, as the already developed organic changes have produced a self-perpetuating vicious circle in which the established obstruction in the vascular bed necessitates the maintenance of an elevated blood pressure for the sake of proper nutrition.

The second portion of the management of the organic phase of hypertension is devoted to the treatment of the organic consequences of hypertension in the various organs. The cardiac complications leading to decompensation whether sclerotic or due to mechanical over-

work, are to be met with the usual sparing of the engine by avoiding unnecessary work even up to the point of complete bed rest. The usual principles of care both physical and medicinal are to be observed. The same is to be said in general terms of renal and cerebral complications and those demonstrable in other organs. It must be realized that after the organic phase of hypertension has been reached, treatment becomes a matter of supporting and patching permanently injured organs and getting the utmost out of the functioning tissue that is left, realizing at the same time that in all probability increasing injury will slowly continue and eventually destroy what reserve function may exist.

In conclusion, it cannot be too strongly urged that the real period for constructive treatment of hypertension exists before prolonged arteriolar muscular fatigue leads to atrophy of the arteriolar muscle layers and to subsequent fibrosis. After that time treatment resolves itself into making the best of permanently damaged organs.

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ROENTGEN RAY IN ACUTE INTESTINAL OBSTRUCTION

A STUDY OF OBSTRUCTION OF THE SMALL INTESTINE BY BANDS AND ADHESIONS

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The object of this report is to serve as a reminder of a valuable procedure as an aid in the early diagnosis of acute intestinal obstruction. A posterior-anterior film of the abdomen in the upright position, made without the use of opaque media, frequently produces shadows that are more or less diagnostic of intestinal obstruction. Films made at intervals of one or two hours may be even more helpful. The early diagnosis of obstruction is frequently difficult; hence the correlation of clinical and roentgenological examinations is of utmost importance.

According to McIver,¹ obstructions are classified, in general, as mechanical and functional. The term ileus for obstruction is not used. Functional obstruction may be subdivided into dynamic and adynamic. Mechanical obstructions are subdivided into the following:

- (1) Obstruction by bands and adhesions;
- (2) obstruction by volvulus; (3) obstruction by intussusception; (4) obstruction by neoplasm; (5) obstruction by strangulated external

From Radiological Department of Jewish Hospital, St. Louis.



Fig. 1. Patient 1: Note large gas bubble in the stomach. Fluid and gas level in the upper left quadrant.

hernia; (6) obstructions by rare causes, such as (a) congenital anomalies; (b) gall stones and other foreign bodies; (c) internal hernias; (d) Meckel's diverticulum; (e) mesenteric thrombosis, and other vascular lesions.

This report is limited to a review of patients with acute obstruction of the small intestines by bands and adhesions.

In McIver's series of 335 patients at Massachusetts General Hospital, 103 patients, 30 per cent of the obstructions, are due to bands and adhesions; 147 patients, 44 per cent, are due to strangulated external hernias; 32 patients, 10 per cent, are due to neoplasm; the remaining 85 patients, 16 per cent, are due to other causes enumerated above. Thus it appears that complete obstruction due to bands and adhesions is second only to those due to strangulated external hernias. Bands and adhesions in the abdomen usually follow some abdominal operation; however, any inflammatory condition within the abdomen or pelvis, occasionally trauma or congenital bands, may account for the formation of bands and adhesions without surgical interference.

The series of cases here reported are all late postoperative obstructions, except one which is a complete obstruction without previous operations and without available history of abdominal or pelvic inflammation.

Too great stress cannot be laid upon the importance of early diagnosis in all cases of ob-

struction. The roentgenological examination usually can be made within a few hours of the onset of symptoms. If the patient be in the hospital, examination should be made within an hour. A second roentgenogram made an hour or two later will usually confirm or deny the presence of obstruction.

The clinical symptoms of early acute intestinal obstruction are frequently vague and difficult to interpret, unless preceded by a recent abdominal operation. The onset of obstruction begins frequently with sudden crampy, colicky pains in the abdomen, mild or severe, intermittent or continuous, accompanied by nausea or vomiting. Vomiting may occur immediately or later. Bowel movements and the passage of gas with or without enemata do not exclude a diagnosis of obstruction in the presence of recurring attacks of abdominal pain. The persistent absence of bowel movements and gas after twelve hours points strongly to obstruction. Visible, palpable, audible intestinal movements may occur. There is no change in temperature, respirations or blood pressure. Early, there is no change in the blood count or urine analysis. Later in obstruction there is usually an increase in the white blood count. Study of the blood chemistry is important if the obstruction continues for some time and is associated with dehydration. The more important later changes are a decrease in the chlorides and an increase in the alkali reserve, and a rise in the nonprotein



Fig. 2. Patient 1: Same patient as figure 1. Film one hour after first film. Note increase in gas and fluid levels. Complete obstruction, upper jejunum.

nitrogen. The presence of the more severe symptoms of prostration, shock, pain and vomiting is frequently associated with obstructions high in the small intestine and obstructions interfering with the circulation to the involved intestine. Interference with the circulation of the involved intestines causing gangrene is the most serious complication in obstruction of any type or at any location.

While these clinical symptoms and signs are in progress, the accumulation of gas and fluid proximal to the obstruction distends the intestine. It is this distention of the intestine that we wish to describe and demonstrate as an early sign in complete obstruction of the small intestine.

Schwartz,² in 1911, made studies of early intestinal obstruction by giving small amounts of opaque media by mouth and taking roentgenograms of the abdomen in the upright positions. These studies showed gas caps on the white parallel bases. In 1913, Assman³ and Hoeslin⁴ made studies of the abdomen in obstruction without the aid of contrast media by mouth and the diagnosis was checked by operation or autopsy. In America, Case⁵ in 1915, did the pioneer work in the gastro-intestinal tract, including roentgenograms of the abdomen, in suspected obstruction and noted the serrated, dilated loops of the small intestine in complete obstruction. Weil⁶ in 1917, emphasized the presence of multiple parallel fluid levels capped with gas in obstruction of the small intestine. He also emphasized the fact that normally there is no gas in the jejunum or ileum. Bensaude and Guenau⁷ demonstrated the fluid levels and



Fig. 3. Patient 1: Same patient as figures 1 and 2. One year later. Note gas and fluid in stomach. Questionable fluid levels.



Fig. 4. Patient 1: Same patient as figures 1, 2 and 3. Film made two hours after first film. Note increase in gas and fluid levels. Complete obstruction ileum.

gas in obstructions of the colon. Since 1917 there are several reports indicating the importance of this procedure. In 1930, Oschner and Granger⁸ made a rather comprehensive report on roentgen diagnosis of ileus with film reductions showing the important diagnostic signs. In 1934, McIver published a monograph on acute intestinal obstruction. Rendich and Abrams,⁹ in their conclusions, state that gas and fluid levels may be present in the intestine in the absence of obstruction. However, in this series of cases, the discharge diagnosis would indicate that there is some serious abdominal condition complicating the diagnosis, such as salpingo-oophoritis, acute cholecystitis, ruptured peptic ulcer or mesenteric thrombosis, allergy, colitis, empyema of the gallbladder, retrocecal abscess and compression fracture of the first lumbar vertebra.

Technic of Examination.—In early obstruction, that is within the first three or four hours, the patient may not be very ill. If the roentgenological examination can be undertaken at this ideal time the patient is placed in a standing position with the entire abdomen covered by a sufficiently large film and the tube at the patient's back. Nothing is given by mouth. It is well known that barium given by mouth in a case of partial obstruction may be sufficient to produce a complete obstruction. A short exposure is desired to prevent the signs of movement on the film and to conserve the patient's tolerance and strength. It seems to be desirable to make this examination within the first four or five hours after the onset of symptoms because films can be demonstrated which show



Fig. 5. Patient 2: Note many loops of small intestine distended. No gas in colon. Complete obstruction lower ileum.

the characteristic signs of obstruction. Experimental studies by Swenson and Hibbard¹⁰ showed the accumulation of gas in the intestine three or four hours after the onset of obstruction, whether it was of mechanical or functional origin. If the patient is too ill to stand he may be placed in a sitting position with the abdomen to the film. In a seriously ill patient there are other possible positions; with the patient prone, the film may be placed to the right or left side of the abdomen and the tube on the opposite side; or the patient may be placed on the right or left side with the film beneath and the tube directly above.

Interpretation of Signs.—The following remarks are limited to acute obstruction of the small intestine due to limiting bands of adhesions. Normally the stomach may contain a small gas bubble. There is no gas in the small intestine normally except in infants and in patients for the first few days following an abdominal operation; but the colon may and usually does contain varying amounts of gas. Elevations of temperature from any cause, kidney colic, gall stone colic, serious heart disease, fracture of the spine, pelvic inflammation, or abscess frequently cause considerable distention of the intestinal tract by gas. This is usually limited to the colon; occasionally the small intestine may be distended.

In obstruction, roentgen ray confirmation depends upon the detection of one or more loops of small intestine dilated by gas and fluid. When the obstruction is high in the jejunum the

gas and fluid levels are usually found in the upper left quadrant and the stomach is distended by fluid and gas. When the obstruction is in the ileum we may look for many loops of dilated small intestine. Case¹¹ has described the appearance of the dilated small intestine as "herring bone" like. In the early stage of obstruction there may be very little gas and fluid collected in the loops of intestine. Later the gas and fluid greatly distend the intestines and the picture may be of a bizarre open fan-shaped formation. An attempt to localize the obstruction will aid the surgeon in placing his incision unless there are more important factors to be considered. The absence of gas in the colon with the presence of gas in the small intestine is additional evidence of obstruction proximal to the large intestine. On the basis of experimental work, Hibbard, Swenson and Levine¹² believe that in the diagnosis of occlusion of the mesenteric vessels a film of the abdomen is of some value, although the picture cannot be distinguished from that produced by other types of obstruction. There is no attempt to differentiate between mechanical and functional obstruction by roentgenograms alone.

REPORT OF CASE

Case 1. F. S., male, aged 22. Appendectomy and two previous operations for obstruction. Onset sud-



Fig. 6. Patient 3: Note fluid levels and gas caps in small intestine. Colon empty. Complete obstruction lower jejunum or upper ileum.

den; abdominal cramps at 3 p. m. Entered the hospital at 6 p. m. Film made at 7 p. m., four hours after onset of symptoms. Note large gas bubble in the stomach; fluid levels and gas in the upper left quadrant. (Fig. 1.)

Figure 2 is of the same patient as figure 1. Second film made one hour after first film. Note gas and fluid level in the stomach. Serrated, dilated loops of small intestine in the left upper quadrant and fluid levels about the crest of the left ilium. No gas is noted in the colon. Operation six hours after onset of symptoms. Thick band around segment of proximal jejunum. Band divided; obstruction relieved. Patient discharged well eight days after onset of obstruction.

Figure 3 is of same patient as figure 2, one year later. Onset of pain at 1 p. m. Admitted to hospital at 4:30 p. m. Film made at 5 p. m. Note stomach filled with gas and fluid. Questionable fluid levels about the left side of sacrum. No gas in the colon.

Figure 4 is of the same patient as figure 3. Film made two hours after first film and six hours after onset of symptoms. Patient given enemas, gastric lavage and drainage. Note fluid levels in the loops of the small intestine dilated with gas to left side of midline. Again there is no gas in the colon. Operated on nine hours after onset of symptoms. Bands of adhesions across the ileum were divided relieving the obstruction. There was no resection. Patient discharged from the hospital nine days after operation. There has been no recurrence of symptoms since this admission to the hospital, November 12, 1934.

Case 2 (Fig. 5). P. S., female, aged 59. Diabetic. Patient taking insulin. No operations previously. Sudden onset of pain in the abdomen followed by three bowel movements in three hours. After twelve hours some nausea. There were no further bowel movements, nor passage of gas. Film made sixteen hours after onset of symptoms. Note long loops of dilated



Fig. 7. Patient 4: Note gas and fluid levels in small intestine. No gas in colon.

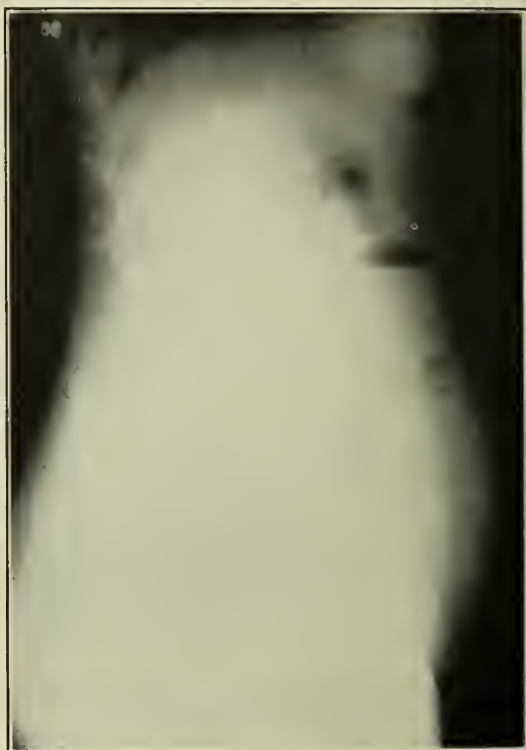


Fig. 8. Patient 5: Lateral view. Gas and fluid levels in small intestines. Colon gas not so easily detected in this view. Complete obstruction small intestine.

small intestine with fluid levels in the dilated loops. Operation twenty-one hours after onset. Band of adhesions around the lower ileum attached to the posterior wall of the pelvis. Band divided relieving the obstruction. There was no resection. Recovery.

Case 3 (Fig. 6). E. B., female, aged 9. Previous operation at seven months of age for obstruction. Admitted to the hospital twelve hours after onset of abdominal pain and vomiting. Film made fifteen hours after onset. Note fluid levels and gas caps in the small intestine. No gas is noted in the colon. Operated on. Band of adhesions divided and obstruction relieved. There was no resection. Recovered.

Case 4 (Fig. 7). L. S., female, aged 46. Previous gallbladder operation. Also had an attack of amebic dysentery. Frequent attacks of sharp abdominal pains for the last several months. Film made about two hours after onset of severe pain. Note gas and fluid levels in the small intestine. No gas in the colon. Second film two hours later; no gas or fluid levels. Patient recovered with conservative treatment. One month later a similar attack of abdominal pain. Operation. Thick band of adhesions divided near the midportion of the small intestine. Obstruction relieved. There was no resection. Recovered. There has been no recurrence of symptoms since the operation fifteen months ago.

Case 5 (Fig. 8). H. B., female, aged 36. Pelvic operation in 1932. Subtotal thyroidectomy in 1934. Acute intestinal obstruction in 1935; operated on and ileostomy done. Recovered. In February, 1936, there occurred a sudden onset of abdominal pain, nausea and vomiting. Film made twelve hours after onset of symptoms. Note in lateral view gas bubbles and fluid levels. Operation. Omental band extending from

omentum to anterior parietal peritoneum completely obstructing the ileum was divided and the obstruction relieved.

Case 6. G. N., female, aged 40. Previous abdominal operations. Sudden onset of pain in the abdomen 7 p. m. Roentgen ray examination twelve and eighteen hours after onset showed gas and fluid levels in the small intestine and no gas in the colon. Operation nineteen hours after onset of symptoms. Band of adhesions around the ileum divided and the obstruction relieved. Recovered.

Case 7. F. G., female, aged 19. Previous abdominal operation. Onset of pain sudden, gradually increasing in severity. Interval films made forty-eight hours after onset showed gas and fluid levels in the small intestine. No gas in the colon. Treatment was conservative. Recovered from severe pain but patient continues to have dull abdominal discomfort.

Case 8. M. S., female, aged 16. Previous abdominal operation. Cramp-like pains in the abdomen for ten days followed by a sudden, sharp pain and vomiting. Roentgenogram showed gas and fluid levels in many loops of the small intestine. Operation. Bands of adhesions obstructing lower ileum were divided. Obstruction was relieved. Patient recovered.

Case 9. H. G., male, aged 18. Previous abdominal operation. Abdominal cramps for two days. Four hours after onset of severe abdominal pain roentgenograms showed great distention of many loops of small intestine and fluid levels. At operation, bands of adhesions obstructing the lower ileum were divided and the obstruction was relieved. There was no resection. Recovered.

SUMMARY

1. The value and use of a roentgen examination early in cases suspected of complete intestinal obstruction is discussed.

2. The examination of the small intestine is made without the use of opaque media.

3. Subsequent films frequently show a progressive accumulation of gas and fluid in the small intestine.

4. Other conditions, in which collections of gas in the small intestine may confuse the diagnosis are enumerated.

5. The signs of complete small intestinal obstruction consist in the distention of the loops of intestine proximal to the obstruction by gas and fluid, with an absence of gas in the intestine distal to the obstruction. The colon which normally contains gas may be entirely empty.

6. It is always necessary to correlate these signs with the history and clinical findings.

7. Nine cases are reported. Complete obstruction due to bands and adhesions was relieved by operation within twenty-four hours of onset.

8. Complete obstruction in three patients is demonstrated by roentgenograms four hours after onset of first symptoms.

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MYASTHENIA GRAVIS

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REPORT OF CASE

E. N. W., aged 50, a traveling salesman on the West Coast, consulted me with his family physician on July 20, 1932. His history was as follows: In November, 1931, his eyelids began to droop and he noted a gradual progressive weakening of the muscles of his face. He was able to work only part time. On March 19, 1932, he had to quit work entirely. Ptosis and diplopia interfered with his vision. He had difficulty in reading. He had tried repeatedly to get satisfactory glasses to correct his difficulty but failed. He could not control his lips or tongue or speak plainly. His muscles of mastication were weak and he had difficulty in chewing. The muscles would tire and food and saliva would dribble from his mouth. Liquids would regurgitate into his nose. He could not spit or whistle. Arms, neck and legs were weak and tired easily. He could not comb his hair or shave; he could walk only short distances; did not suffer any pain; rest refreshed and improved him, but as the day progressed he would grow weaker.

Family history was negative. He was reared in the country, was married and had five healthy children. Previous to November, 1931, had very little sickness of any kind. Habits and moral character good. He knew no reason for this attack.

Physical examination showed a man slow in movement, lacking in energy, fairly well nourished and healthy looking. Muscles soft and flabby. Complained only of muscular weakness, easily fatigued on exertion and had to lie down most of the time. Reflexes lowered but not lost. All the symptoms given in his history were still present but not to such marked degree. The ptosis and diplopia interfered with vision. Pupils reacted normally to light and accommodation. Fundus and media normal. Power of expression partially lost. Sensations normal and he suffered no pain. Blood pressure was 105/70. Temperature, urine and blood count were normal. Wassermann was negative. Roentgen ray showed absence of frontal sinuses. The other sinuses were clear. Chest normal. Several lower teeth were abscessed and there was some infection of the gums. His tonsils were of the lymphoid type and badly diseased. There was considerable congestion of the nasal passages and his ears felt stuffy. Roentgen ray of chest was negative. Heart was normal in size, shape and position, good rhythm and no murmurs.

Read at the 78th Annual Meeting of the Missouri State Medical Association, Excelsior Springs, May 6, 9, 1935.

TREATMENT

His abscessed teeth were pulled, tonsils radiated and nose and gums treated. He was given a nourishing diet, strychnine and iron tonic and bed rest. He improved rapidly. On August 10, 1932, he felt so much better that he went to work at his old position. This was against his physician's advice. On December 1, 1932, a letter stated he had been slipping for three weeks. Later, another letter said he died on December 15. I did not get the particulars of his death.

This is a disease "with bulbar syndrome without bulbar paralysis." The trouble is not in the central nervous system but within the voluntary muscle itself. No definite organic pathology has been found. The first case of myasthenia gravis (pseudobulbar paralysis) was reported by Wilks in 1877. He described it as a case of bulbar paralysis in which no anatomical changes were found after death. In 1878 Erb reported a peculiar case with ptosis, paralysis of the jaw and neck muscles, weakness of tongue, extremities, upper part of face and difficult swallowing. In 1887, Apenheim reported the next case in which a careful microscopic examination of the nervous system was made and the disease established as a clinical entity. Many cases have been reported since then. The disease is by no means rare. Boothby reports eight new cases in the Mayo Clinic from May 1 to June 14, 1934.

The etiology and exact nature of myasthenia gravis is not definitely known. There are many theories as to its cause; namely, infectious, toxic, chemical, neurogenic (origin in central nervous system), psychogenic and metabolic disturbances in the muscle itself. Thirty-five per cent of the patients give a history of some acute inflammatory process just previous to the onset. In many cases the thymic gland is enlarged. Boothby says, "The fact that certain groups of muscles having more or less a common innervation are involved leaves the possibility open that the trophic nerves are in some unknown way involved in the syndrome." The latest thought on the subject is to the effect that it is caused by a metabolic disturbance in the muscle substance itself. Boothby says, "Evidence substantiates the idea that the weakness accompanying the disease is due to disturbance of the intermediate chemical reactions concerned with muscle contraction, or to recovery therefrom." None of these theories stand up under rigid clinical tests.

Our knowledge of the physiology of muscle tissue is limited. We are unable to tell exactly what constitutes a primary disease of the muscles. We are not sure about the etiological factors that cause muscle contractions.

The disease may come at any age. Belle says the most frequent age is between 20 and 50. It begins in certain groups of muscles, usually in those most frequently used. In 40 per cent of the cases it begins in the muscles of

the eyes; next the muscles of mastication, deglutition and articulation. As the disease progresses it involves the muscles of the neck, arms, legs, chest, bowels and in rare cases, the muscles of the heart. The muscles of the eyes are involved in 80 per cent of the cases. The first eye symptoms are ptosis and diplopia.

Characteristics of the disease are that it is progressive, (except in a few cases), intermittent with spontaneous remission, muscles fatigue rapidly with exercise and recover after a period of rest. It is extremely chronic; there is no atrophy of muscles except from disuse and no pathological findings except some round cell infiltration. Most cases soon go on to death by the patient becoming bedridden, unable to talk or swallow and finally dying of asphyxia or aspiration pneumonia.

THEORY

Creatine in the form of phosphocreatine in the muscles seems to be the activating substance that energizes the muscles. If creatine is given by mouth most of it is excreted by the kidney and passes out in the urine as such, and feeding it does not increase the creatine content of the muscles; consequently there is no clinical improvement. It seems that in myasthenia gravis the patient cannot fix or retain the creatine in the muscles. It is continually lost in the urine with loss of muscle tissue function. Glycine forms creatine which after a few weeks is retained in the muscles and the patient shows clinical improvement. Glycine (glycocol, one of the simpler aminoacids), a sweet glue or gelatin sugar derived from muscles and other proteins, is more of a food than a drug. It is a tissue builder. It seems to supply the deficiency in muscle metabolism. This creatine is retained in the muscle as phosphocreatine and serves over and over again to supply energy for muscle contraction and muscular efficiency which increases at remarkable rate. The glycine plays a definite part in muscle metabolism. It does something to alter the metabolism of creatine. Feed it to the patient and he improves; cease feeding it and he ceases to improve and may revert. Creatine diffuses out of the muscles only after the muscle is fatigued. Then the creatine phosphate is broken down into creatine phosphoric acid so that the creatine can diffuse out.

PATHOLOGIC FINDINGS

There is a marked round cell infiltration of the muscles. Buzzard, in 1905, called these areas "lymphorrhagias." They are found throughout the skeletal muscles and in other organs. Both the central and peripheral nerves are normal by the most skillful microscopic observation. In other words, there is very little pathology in either the nerve or muscle tissue.

DIAGNOSIS

All the symptoms are confined to the muscular tissue. We make the diagnosis on both subjective and objective symptoms. It is the only disease where the muscular contractions rapidly grow weaker and weaker until they cease to contract, then recover with rest and yet show no muscular atrophy or degeneration. It runs a varied course in intensity, getting better and worse with a slow but certain progression of the disease to a fatal end in most cases. There is occasionally a complete intermission or spontaneous cure. As a rule, the first or earliest symptoms are in the muscles supplied by the cranial nerves, especially those supplied by the bulb.

In a well developed case we find drooping eyelids, refusal of tongue to work well, drooping of lower jaw, inability to keep the mouth closed, difficulty in chewing, saliva and food ooze out of the mouth, fluids regurgitate through the nose, nasal speech develops, inability to whistle or spit, forehead wrinkles in effort to raise eyelids, diplopia, nystagmus, weak superior recti, numbness in back, arms and legs; the patient experiences difficulty to dress himself, can't comb hair or shave. Muscles fatigue rapidly with use and recover with rest. They function better in the morning than in the afternoon. If stimulated with a faradic current the muscles fatigue rapidly until they cease to contract. After they are fatigued, stimulation with a galvanic current causes them to contract again. This is the myasthenia reaction of Jolly.

TREATMENT

The treatment consists of rest in bed, a nourishing diet, elimination of all focal infection and general hygienic measures.

Many drugs have been tried but there are only two, ephedrine and glycine, that seem to be beneficial in the treatment. The beneficial effect of ephedrine was discovered by Harriett Edgeworth, a laboratory technician who had been a sufferer from myasthenia gravis for three years. While taking ephedrine for other purposes she found that it helped her myasthenia gravis. The story in her own language is as follows: "How ephedrine produces a continuous improvement in some patients with myasthenia gravis is unknown. The daily injection of it over a period of three years has changed me from a totally helpless, bedridden person to my present condition, wherein I live a comparatively comfortable and pleasant life of some usefulness."

Ephedrine acts on the central nervous system and increases the excitability of the reflexes. It is a powerful central nervous system stimulant. It is given in one eighth to three

eighths grain doses three times daily. Large doses of ephedrine may cause harmful effects.

The second advance in the treatment of myasthenia gravis resulted from a suggestion of Thomas Milharet and Fritz Techner in 1932. They had treated a case of progressive pseudohypertrophic muscular dystrophy with glycine with favorable results.

Glycine, the simplest of the aminoacids, is a normal constituent of muscle tissues. Under normal conditions our bodies have the ability to synthesize this substance.

Use.—It is given in 10 to 30 grams daily divided into two or three doses. A combination of ephedrine and glycine as a rule gives the best results. Three to 10 grains of glycine followed by one eighth to three eighths grains of ephedrine are given three times daily. It may be taken in water or milk and administered indefinitely without harm. Patients with myasthenia gravis treated with either ephedrine or glycine show definite improvement and in many cases marked improvement. With treatment the patient fatigues less easily, feels more energetic, has more strength and endurance, has better muscle tonus, is less susceptible to colds and gains in weight. A very large percentage of the cases can be improved sufficiently to permit them to return to work or enjoy a useful life.

Wilder says, "I believe we can now accept it as a fact that glycine is a therapeutic agent of significant value in myasthenia gravis." In some severe cases we get no therapeutic benefit; in other severe cases we do. We get benefit in all the milder cases.

These favorable results have been noted by Remen, Schmitt, Von Dolsen, Trubek Reece, Taylor, Beard, Trepoli and many others.

The treatment with glycine is rational and is based on the chemistry and metabolism of the muscles.

A single occasional dose of prostigmin produces immediate beneficial effects lasting from three to five hours. This is followed by a slump which is quite marked and lasts several hours. There is some danger in its use especially in severe cases.

Drs. Rosenow, Robertson and Butt are attempting to determine if the toxic factor is of microbic origin. They think that the round-celled lymphatic infiltration and degeneration might be the results of an infectious process. Dr. Robertson has been able to demonstrate streptococci in muscle tissue obtained at necropsy of a myasthenia gravis patient. Dr. Boothby says, "Recently we have been able to demonstrate and prove to our satisfaction that the disease is of bacterial origin due to the presence of cocci in and between the muscle fibers and that these give off a toxin which

causes the muscle fatigue." Dr. Rosenow has made an autogenous vaccine from cultures from the throat which has some value in controlling the disease. These studies are still in progress.

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THE LEUKOPENIC INDEX

TECHNIC AND INTERPRETATION

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The leukopenic index is the term applied by Vaughan¹ to a series of total leukocyte counts when used as a diagnostic procedure in the study of food allergy. The test as he described it consists of two fasting counts ten minutes apart before the ingestion of a single test food and six post-ingestive counts, four at fifteen minute intervals and two thirty minutes apart during the second hour. This procedure was based on the colloidoclastic crisis test for liver function,² and its application to food allergy is due to the acuity of Vaughan's observations while performing a liver function test on a patient with a known sensitivity to milk. In this instance and in subsequent food tests he usually found a post-ingestive leukopenia with foods that produced allergic symptoms while foods not causing symptoms were usually followed by a leukocytosis or by slight changes in the total count.

Following the publication of Vaughn's work Rinkel performed a large series of these tests on a number of patients. While the leukocyte

response was found to be consistent with the proved clinical effect of various foods in patients who had been relieved of symptoms by dietary manipulation subsequent to skin testing, it was of little diagnostic value when interpreted on a basis of a general increase of the leukocytes as denoting a non-allergic state and a general depression of the total white count as denoting an allergic state, in those patients whose symptoms had not been controlled by the previously used test methods and clinical management. Therefore, the test was temporarily discontinued until a patient with severe and intractable asthma was studied in August, 1934. In this case, after all accepted diagnostic measures had been used without benefit to the patient, the leukopenic index was again tried.

In the process of making these counts a clinical observation was made of the presence and degree of symptoms following the ingestion of each food. There were three tests subsequent to which the symptoms did not increase and the graphs obtained with these counts exhibited certain definite and similar characteristics. Based on these observations Rinkel defined a normal curve, later designated as a compatible curve, as "One having two successive increases in the total white count, the first of which was greater than the known error in counting, the second being more than 1000 cells above the initial count, and the count at the end of the hour being definitely greater than the beginning one." We have not found in our combined experience of over five thousand tests a single exception to this original definition of a compatible curve.

Subsequent to this study the patient was placed on a diet of the compatible foods; namely, wheat, egg and carrot, and became symptom free within four days. This improvement was all the more remarkable as the asthma had been of such severity as to require between three and eighteen injections of adrenalin almost daily for the three preceding years.

Following this experience the test was applied to a number of patients with intractable allergy and the excellent clinical results obtained indicated the practical value of the original definition of a nonallergic food response. In this study the various types of curves as illustrated in figure 1 were obtained with the exception of the one with initial leukocytosis followed by an avalanche drop which Gay later found to be associated with a violent allergic reaction. These curves and their clinical importance were reported in a previous paper.³

In December, 1934, Gay began the clinical application of these tests using the same methods of interpretation and he has not only corroborated the general types of curves and their relative diagnostic value, but he has also found iden-

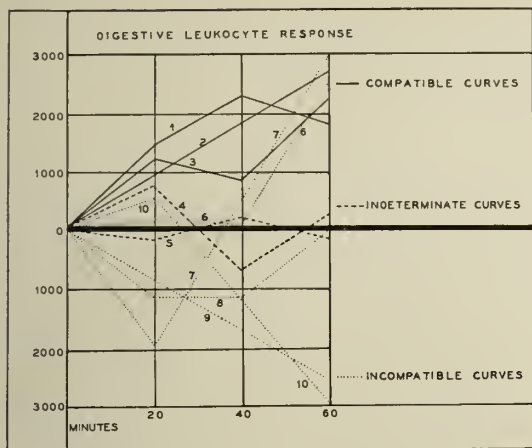


Fig. 1. Types of curves obtained by plotting the leukocyte counts made at 20, 40 and 60 minutes after ingestion of a test food. The solid lines indicate compatible curves, the interrupted lines indeterminate curves and the dotted lines incompatible curves.

tical leukocyte responses in a number of disease syndromes, particularly peptic ulcer,⁴ habitual hyperthermia⁵ and others not yet published.

This paper is based upon more than five thousand individual tests and is being presented not only because of the uniform clinical results but, also, to show the consistent findings of two men working independently. In both cases the interpretation of the post-ingestive leukocyte response has been made upon the type of curve obtained by taking counts at twenty minute intervals for a period of one hour. These graphs have been designated as the compatible, the incompatible and the indeterminate for ordinary clinical application.

TECHNIC

The essential features in the technic are: The correct preparation of the patient, the proper administration of the test food and accuracy in making the counts.

The preparation of the patient includes the maintenance of a fasting state to insure a maximum anaphylactic shock when a test food is given. The patient must be kept at rest for thirty minutes preceding the fasting count which eliminates the necessity of two fasting counts. If the patient has been exposed to extremes of temperature before the test, sufficient time should be allowed to regain a normal condition.

An average serving of a single test food is prepared without the addition of sauces, condiments or gravies. Just as soon as the fasting count is taken, the food is eaten promptly while the patient remains in an assigned chair and is required to sit quietly without smoking or unnecessary conversation during the test period.

It is important that the test foods be prepared so that the intake represents a constant volume for each of the articles tested. In this connec-

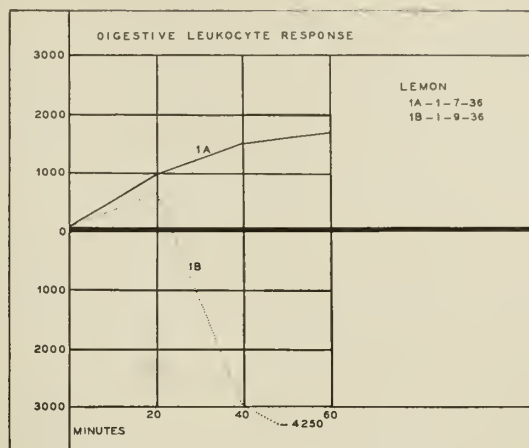


Fig. 2. Variation in the leukocyte response due to the length of time required for consumption of an equal volume of the test food on two occasions. Curve 1A was obtained following slow ingestion, curve 1B following rapid intake. Clinically, curve 1B was the correct leukocyte response.

tion it is possible to have considerable variation in the leukocyte response due to two factors; first, the duration of the period of ingestion and, second, the preparation of the food. While these factors are no doubt of more importance in the modification of the symptoms induced than in the tests themselves they are worthy of consideration.

In figure 2 the possible variation of the leukocyte response due to prolonged or rapid ingestion of a given volume of a test food is illustrated. Curve 1A is the response following slow intake of food and curve 2A was obtained with the same food eaten rapidly.

In figure 3, attention is called to the variation of the leukocyte response due to the preparation of the test food, curve 1A being that of a regularly prepared food while curve 1B was ob-

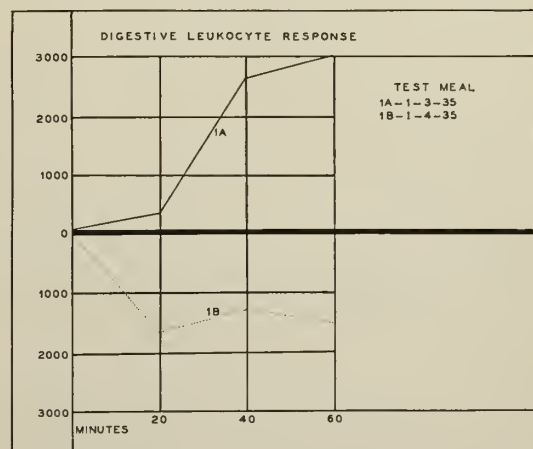


Fig. 3. Modification of the leukocyte response due to manner in which the test food was prepared. Curve 1A was obtained with food cooked in the regular manner; curve 1B with the identical foods prepared in a pressure cooker, the amount of food and the duration of ingestion being exactly the same.

tained after feeding the exact portions of the same food cooked under steam pressure. Severe asthma developed within forty minutes after eating the super-heated foods, while in the first test it occurred one and one half hours after the meal. The clinically false compatible leukocyte response of curve 1A is due to the prolongation of the time of ingestion.

The most important item in blood counting technic is that of equal dispersion of the white cells which can be obtained by manual agitation of a pipette in a simultaneous end to end and rotating movement for a period of three minutes. Even under these conditions the blood may not be equally dispersed, therefore a total of eight squares are counted and the average is taken for the computation of the count. Vaughan¹ has emphasized the necessity of using the same pipette for all counts during a given test.

The interval between counts is a matter of choice, not necessity. It is important, however, to develop an intimate knowledge of the types of curves obtained with the different time intervals. Our counts have been made at twenty minute intervals as a matter of convenience after comparison with counts made at ten and fifteen minute intervals.

INTERPRETATION

In our experience the general increase or decrease of the total white counts has not been as significant as the type of curve. The practical application of the leukocyte response is therefore made upon a visualization of the serial counts by means of a graph. The clinical import of the respective curves has been determined by direct observations in a large series of clinically controlled cases of allergy over an extended period of time.

An analysis of over 5000 tests indicates that while there is some variation as to the curves, the large majority of them naturally fall into one of the types illustrated in figure 1. These can easily be classified as the compatible, the indeterminate and the incompatible curves.

The necessity for a proved accuracy in making the counts and an adequate clinical experience with a series of these tests before one attempts their use in clinical allergy is emphasized. In acquiring this experience it is distinctly preferable for the physician to make his own counts instead of delegating this to a technician.

To test the accuracy of blood counting two procedures are necessary. First, one should perform two counts simultaneously with two pipettes and, second, counts should be made at the same time by two persons. In either case the graphed response should not show a variation of over 5 per cent. Another criterion of

accuracy in counting is the type of curve obtained with the graphs. In general these should correspond with the various curves indicated in figure 1.

THE COMPATIBLE CURVES

The compatible leukocyte responses include curves 1, 2 and 3 of figure 1. While curve 1 fulfills the original definition of a leukocyte response to a food that does not produce symptoms, it has since been found that curves of type 2 and 3 are likewise obtained with foods that do not produce clinical allergy at the time of the response.

Particular attention is called to the straight line increase designated as curve 2. the first post-meal count must show an increase greater than the known error in counting in order for this response to indicate a compatible food. Subsequently we shall discuss the possibility of error in this type of response.

Curve 3 is characterized by a secondary drop occurring at forty minutes which has been found to be an indication of potential sensitivity. Foods producing this type of leukocyte response are prone to cause symptoms if used as a daily article of the diet.

THE INDETERMINATE CURVES

There are two types of curve of the indeterminate leukocyte response. Curve 4 of figure 1 has the wide fluctuation of the serial counts and is more frequently associated with foods producing symptoms than is curve 5 which shows only a slight variation. A wide fluctuation of the serial counts is a definite indication of food incompatibility. In the narrow range indeterminate type (curve 5), if the forty minute count is above the initial count, the food is less apt to cause symptoms than when it falls below the base line.

THE INCOMPATIBLE CURVES

The incompatible curves are indicated as curves 6, 7, 8, 9 and 10 in figure 1. In designating these curves as incompatible, reference is made to the practical clinical application of these curves and does not imply that all foods producing such leukocyte responses are invariably a cause of symptoms. Ninety per cent of these curves have been found to be associated with clinical manifestations of hypersensitiveness.³

Curve 6 consists of a definite leukocytosis following a count which is practically stationary for a period of twenty or forty minutes. A straight line increase following the twenty or forty minute count is obtained with foods that practically always produce symptoms. It is this type of reaction that accounts for the impression that incompatible foods do produce a post-

ingestive leukocytosis. The possible source of error in these counts is the failure to find the initial leukopenia and it is for this reason that we have emphasized the importance of the twenty minute count in curve 2.

Curve 7 is one of extreme importance. The initial leukopenia often amounting to as much as 3000 cells is followed in turn by a hyperleukocytosis and is usually associated with severe allergic symptoms. Gay described the clinical importance of this response as follows: "It is not difficult to imagine that a patient might eat a food which would produce severe abdominal pain and at the same time develop an initial leukopenia which in turn would be followed by a hyperleukocytosis and this, in combination with the subjective complaint of pain in the right lower quadrant and tenderness on palpation, would warrant the diagnosis of acute appendicitis with immediate exploration and the removal of a normal appendix." Rinkel⁶ has reported a patient with chronic gastro-intestinal allergy on whom this very procedure was carried out.

Curve 8 is the type of leukocyte response found most frequently with foods that produce clinical signs of allergy. It is described as the one hour "U."

Curve 9 is a straight line leukopenia, a more or less constant depression of the total leukocyte count. This response is associated with a high per cent of allergic symptoms.

Curve 10, although relatively rare, is characterized by an initial leukocytosis followed by an avalanche drop. When this response occurs severe constitutional symptoms invariably follow.

THE CLINICAL APPLICATION OF THE LEUKOCYTE RESPONSE

The diagnostic value of the test as outlined would indicate that the study of food allergy is a relatively simple procedure. This problem is complicated however as the leukocyte response is not constant³ but is modified by the frequency with which a food is used in the diet. This variation of the leukocyte response is illustrated in figure 4.

In order to eliminate food allergy one must be able to demonstrate compatible curves after the continuous use of a specific food.

Another point of importance is in the use of this test in patients with several types of allergy. For example, if one is studying a patient with migraine who also has seasonal hay fever many incompatible curves may be obtained to foods which may precipitate coseasonal hay fever symptoms but are not an etiologic factor in the migraine. This indicates the necessity of subsequent clinical tests and close observations.

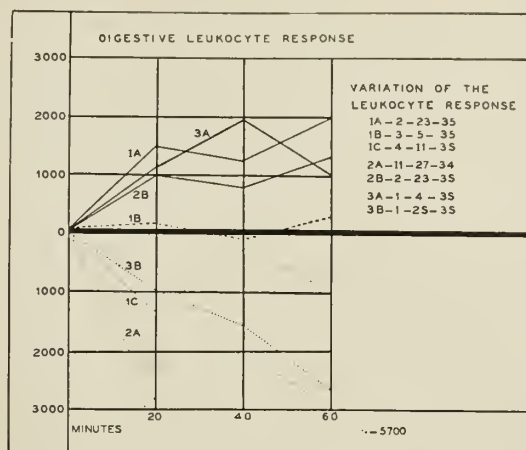


Fig. 4. Variation of the leukocyte response in relation to the incidence of the test food in the diet. Curve 1A is the response to carrot when used occasionally; curve 1B after being used daily for ten days; curve 1C after constant use for five weeks. The latter curve was associated with clinical symptoms. Curve 2A was obtained with pork which produced severe symptoms. Curve 2B is the response to pork after three months avoidance and was not associated with clinical allergy. Curve 3A and curve 3B indicate similar changes in the leukocyte response to rice following constant use of the food for three weeks.

Except in the intractable allergies the foods to be tested should be used constantly in the diet for a few days preceding the determination of the leukocyte response.

The inability of the intractable allergic to maintain compatible leukocyte responses to foods which are used constantly is a problem of great clinical importance. Zeller⁷ has discussed this feature in the case of intractable asthma and one of the authors has reported upon the nature of the leukocyte response in the several intractable allergies.

Figure 5 illustrates this feature in a patient with intractable asthma and we have found that the responses and their subsequent changes have

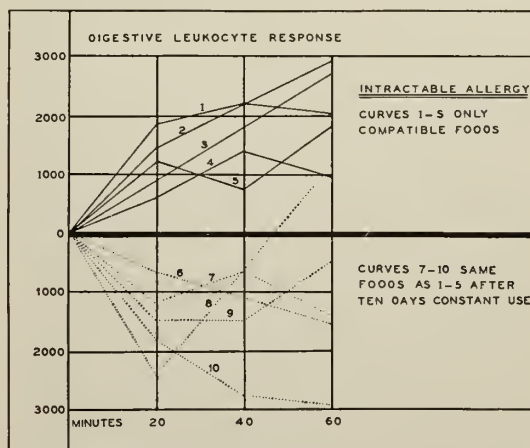


Fig. 5. Compatible responses in a patient with intractable asthma and the responses after these foods had been used more or less constantly in the diet for ten days.

been identical from a clinical standpoint in the other types of intractable allergies.

The use of the leukocyte response as a diagnostic measure of food allergy has been found to be of great value in the several types of allergy as well as in other syndromes heretofore not generally considered as having an allergic factor.

The procedure has been found to be of practical value in infantile eczema.⁸ It has also been used successfully to determine preseasonally the compatible diet of hay fever patients.⁹

Its use in patients with peptic ulcer⁴ indicates the importance of the specific food factor in this syndrome; it has simplified the management and improved the clinical results. Idiopathic habitual hyperthermia⁵ has been successfully treated by means of this test.

SUMMARY

The diagnostic use of the leukocyte response was originally described by Vaughan and designated by him as the leukopenic index.

The technic and interpretation of this test as used by the authors has been described in detail. The visualization of the leukocyte response has enhanced the clinical value of the procedure to us. It has been found that practically all leukocyte responses can be charted and interpreted upon the basis of the several types of curves detailed herewith.

It is of extreme importance that the counts be made with accuracy and that the physician develop an intimate knowledge of the clinical value of the tests preliminary to their general use as a diagnostic measure.

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OVERGROWTH IN INFANTS FROM SUPERALIMENTATION

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Physicians should be interested in overgrowth as well as atrophy. The latter nutritive condition has become relatively uncommon, thanks to our modern methods of artificial feeding, but the question of overgrowth is intruding itself and sometimes in a very annoying fashion. While the relatively low protein content of human milk prevents the occurrence of an overgrowth, the high content of protein in our dry milk, buttermilk and evaporated milk formulas seems to favor this in many cases. The ratio of the protein to the nonprotein elements of food in human milk is about 1 to 11 when computed in calories, but some of our artificial foods give a nutritive ratio of 1 to 4 or 5. Now, the question arises: Does this high protein content produce an overgrowth especially when fortified by additional vitamin substances? My own experience suggests rather forcibly that it does (Figs. 1, 2 and 3).

However, we must distinguish between adiposity and overgrowth. We often see breast fed babies who are very fat but who are not overgrown. What then are the signs of this overgrowth? We are using the following signs: Excessive weight, excessive height, closure of the anterior fontanelle, and a disturbance in the neuromuscular functions. In

Table 1. Closure of Fontanelle

Sex	Age Months	Weight Pounds	Diet
M	11	24	Pet milk.
F	11	23	Buttermilk.
F	11	22	Plain milk.
F	11	23	Evaporated milk.
F	11	20	Evaporated milk.
M	12	24	Evaporated milk.
F	11	21	Plain cow's milk.
F	8	19	Cow's milk.
F	8	19	Dry milk.
M	14	24	S. M. A.
F	12	26	Evaporated milk.
M	7	16	Breast and dry milk.
M	13	21	Cow's milk.
M	6	19	Cow's milk and sorghum.
F	9	20	Buttermilk.
F	10	21	Breast milk and other food.

Early closure of the fontanelle is present in many of these infants who are overgrown.

Table 2. B. D. Boy

Weight at 1 year	26 pounds.
Weight at 15 months	30 pounds.
Weight at 3 years	40 pounds.
Weight at 5 years	46 pounds.
Will not eat.	Has to be fed. Was on buttermilk as a baby.

Case of overgrowth kept up by an anxious mother who feeds her child when five years of age.

Read before the St. Louis Medical Society, February 18, 1936.

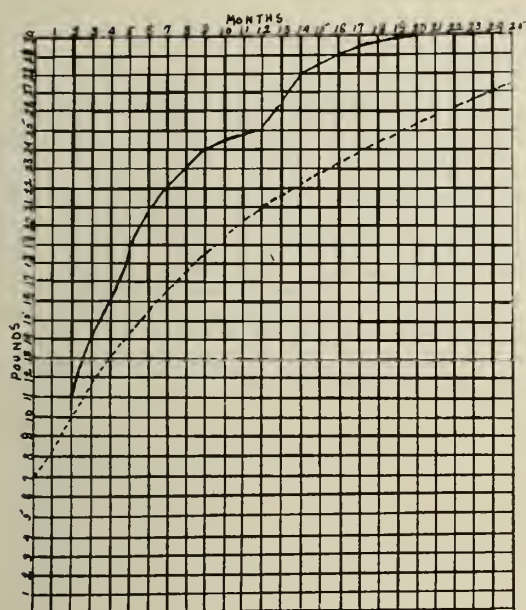


Fig. 1. Fed buttermilk, evaporated milk, whole cow's milk with carbohydrates, early feeding, cod liver oil. Weight curve.

most infants the overgrowth is revealed by inspection; the child appears in every way too big for its age. In general, we regard an excess of two pounds in weight at 6 months, 3 pounds at 1 year, and 3 pounds at 2 years as evidence of overgrowth. (Fig. 4.) A length of the body over 27 inches at 6 months, over 30 inches at 1 year and over 34 inches at 2 years are regarded as positive signs. We believe it is

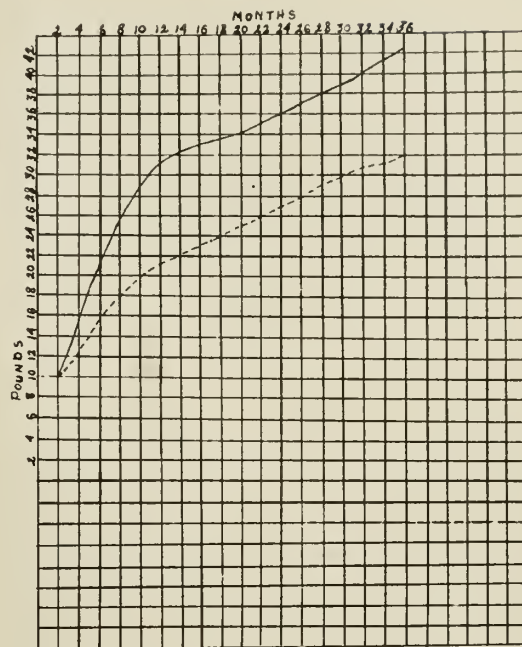


Fig. 3. Breast milk 6 weeks, powdered milk, cow's milk. General diet at 8 months. Overgrowth and adiposity.

normal for the fontanelle to remain open and nearly one inch in diameter at 1 year. A complete closure of the anterior fontanelle before the fourteenth month is regarded as a positive sign. The testing of the neuromuscular functions is less definite but is valuable since a delay in the muscular activity combined with an over-

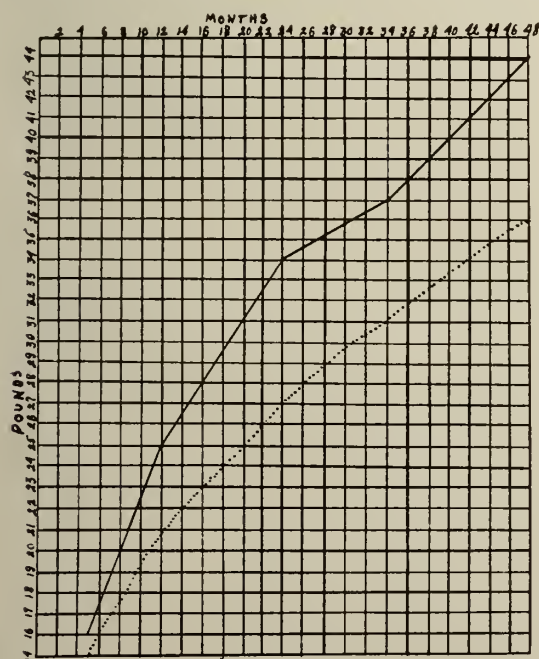


Fig. 2. Breast fed for 11 months, fed early, cereals and cow's milk, vitamins.

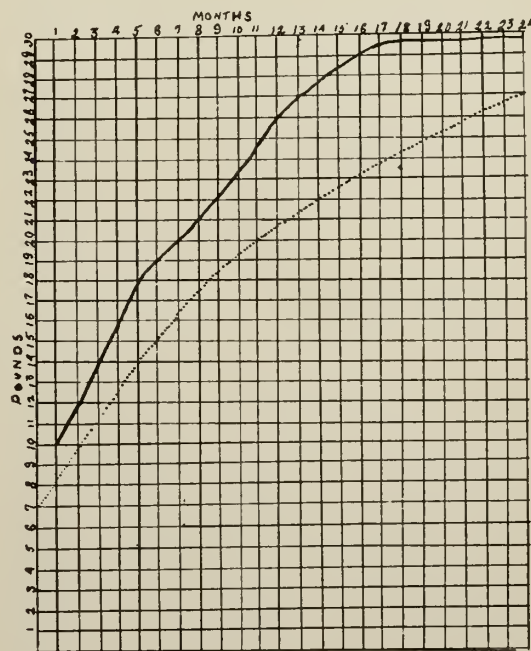


Fig. 4. Curve of average size in 50 infants considered overgrown. Note the marked tendency at 18 months to join the normal average.

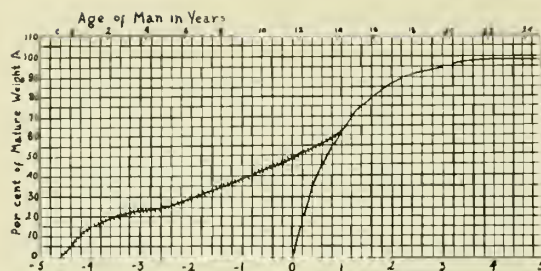


Fig. 5. Curve of human and animal growth. The long period of retarded growth during childhood is characteristic of human beings. (Bulletin No. 97, University of Missouri.)

growth rather points to an endocrine disturbance.

We have in the last three years found many infants who have very small or closed fontanelles at one year (table 1). I have concluded that a high protein diet fortified with cod liver oil is the chief cause of this, although I am aware that the fontanelle closes earlier in those children who have a long narrow skull than in those who have round heads, and the shape of the head may depend almost entirely upon inherited tendencies.

Then the next question presents itself: Is this overgrowth in infancy advantageous to the child or may it actually be harmful? Now this question is not easily answered. In many children this infantile overgrowth is naturally corrected when the child is 3 or 4 years old. I am inclined to believe that the so-called anorexia nervosa of early childhood sometimes is a natural impulse to stop growing (Fig. 4). We have seen many overfed infants become poor eaters. But the mothers do not let them alone; they often gorge the child with food and use all the culinary arts to overfeed the child (table 2). From this group Frölich's syndrome must, of course, be excluded; thyroid and adrenal disturbances must also be considered.

Another question: If this overgrowth in infancy continues during childhood will pubertal changes occur prematurely? We have had a few cases in which this question received an affirmative answer. Experiments on some animals have clearly shown that an improvement in the diet results in a much earlier maturity. (See Agriculture Bul. 116, University of Missouri.)

We wish here to call attention to the distinguishing feature of the growth curve in man and animals. Theoretically, an early maturity is undesirable; rather we would like childhood somewhat prolonged. Of course, the advent of puberty depends on other factors besides growth, but I believe that persistent overgrowth from superalimentation may cause a sexual precocity and thereby the child reverts to the

tendency in animals to grow rapidly and steadily to maturity (Fig. 5).

Is the early closure of the fontanelle harmful? Perhaps not, as a rule. However, it suggests the possibility that the sutures at the base of the skull or the coronal suture may become united and thereby produce a change in the configuration of the skull, that is, a tendency to oxycephaly or dolichocephaly.

We have not satisfied ourselves that the overgrown child is more resistant to the infectious diseases than the thin child.

You may object that I have not conclusively answered any of the questions which I have put. That is true; and yet the practitioner can question the rationality of modern practice of feeding the child such a high protein diet and administering concentrated vitamins regularly. We have made many errors in the past simply because we based our practice on some deductions of the laboratory. Some of us are convinced that, whereas twenty years ago the young child was underfed and therefore was underweight, because so many digestive disorders were attributed to overfeeding, we now have gone too far in the other direction. We overfeed and overstimulate infants thereby causing an overgrowth in many cases the ultimate advantage of which is extremely doubtful.

Conclusions: The modern method of artificial feeding of infants often leads to an overgrowth. This is shown by an excessive weight and excessive height, early closure of the fontanelle and a precocity in the neuromuscular functions. Some clinical evidence is given to support the contention that this overgrowth may ultimately be detrimental to the child. The forcing of infants and young children by feeding too much protein and vitamins is irrational and may be actually harmful.

COMMENT

The literature on vitamins has become so enormous that the practitioner finds it impossible to follow the scientific researches going on in this field. Furthermore, most of these studies are based on experiments on animals and their general applicability to man is extremely doubtful. We must, therefore, be content to learn the fundamental principles on the subject and use our common sense strengthened by our professional experience to guide us in practice. As a group, physicians should oppose the incessant and powerful propaganda which attempts to teach mothers and physicians that the omission of several daily doses of some commercial extract containing vitamins A, B, C, or D is clear evidence of neglect.

The scientific data obtained from animal experimentation must always be received with some skepticism. We must critically compare the physiological conclusions with our clinical experience. A guiding formula derived from experimental medicine has no practical value until thoroughly tested out by the clinician. We must not permit some radical conclusion of the laboratory to upset a tried rule of practice except after an exhaustive clinical research.

For example, it was shown that human milk often contains an insufficient amount of vitamin C (the antiscorbutic vitamin) as judged by laboratory tests. Consequently, the dictum was pronounced that all infants should receive orange juice soon after birth. Hence, nurses usually instruct mothers to give some orange juice and cod liver oil as soon as they leave the hospital.

As a matter of fact scurvy from breast milk is almost unknown. Then why disturb the digestive and metabolic functions of the young infant unnecessarily? Giving orange juice too early may sensitize the infant to this substance.

I have adopted the practical rule that an infant fed exclusively at the breast should receive no orange juice nor cod liver oil until he is three or more months old. He doesn't need it. However, this rule may have to be modified in the winter time when the infant is compelled to remain indoors for a prolonged period. Cod liver oil is then indicated even in breast fed infants. On the other hand, when an infant receives a boiled or highly sterilized food, such as evaporated milk, orange or tomato juice must be given at once at any age.

Again, a common rule of practice is: Give a teaspoonful or more of cod liver oil three times a day to every young child. It is really astonishing how the young mothers are carrying out this instruction. The overfed baby may refuse his milk or oatmeal but he is compelled to swallow the cod liver oil. This is especially true now since the potency of a teaspoonful of cod liver oil can be administered in two drop doses. The young child has no chance. The little body can make no protest. He is overfed on vitamins A and D and there is no way for him to escape.

The attitude toward the growth of children is wrong. Our children are neither pigs nor lambs which we desire to send to the stockyards as soon as possible. Periods of retardation in growth are physiological in young children, and usually depend on inherited tendencies. Efforts to upset this may be disastrous. Overgrowth may be just as objectionable as atrophy.

You may accept these clinical observations with skepticism. The observations are too few to be conclusive. It is a straw vote only, but it

should make the practitioners question the rule that concentrated vitamins are advantageous to the proper development of the child. I believe all the concentrated vitamins will ultimately be put on the shelf beside quinine and salicylate of soda; useful medicaments to be used for therapeutic purposes only. This overstimulation of growth is a questionable practice. It seems to me much more rational to have the foods as such contain the necessary accessory substance. A dish of vegetable soup will supply sufficient vitamin B for a day or two; why give some more concentrate? For the children of our large cities who cannot receive enough sunlight, vitamin D must be furnished. During our dark months, some cod liver oil must be given, but the rest of the year the milk and butter should supply a sufficient quantity. We are depending on research work in our dairy industry to work out the task of furnishing a cow's milk which shall contain all the vitamin A and D for normal growth of the normal child who lives in the suburbs or the country and has a reasonable amount of activity out of doors.

We would welcome the manufacture of an evaporated milk which contains a sufficient amount of ascorbic acid to prevent scurvy.

In conclusion: Children who are taught to eat a general diet and are permitted to exercise daily need no concentrated vitamin substances. Infants fed on boiled or evaporated milk must have orange juice, tomato juice, bananas or apples. All children should be taught to eat some vegetables daily, but should not be gorged with them. During the winter months the infant between 6 months and 2 years old should be given some cod liver oil during the winter months, December to March inclusive. The concentrated cod liver oil should be reserved for children who cannot take the pure cod liver oil.

536 N. Taylor.

TREATMENT OF PERNICIOUS ANEMIA WITH AUTOLYZED LIVER CONCENTRATE

Theodore G. Klumpp, New Haven, Conn. (Journal A. M. A., April 11, 1936), studied the therapeutic potency of autolyzed liver concentrate-Squibb for a period of two years in the wards and in the hematology clinic of the New Haven Hospital. He found that autolyzed liver concentrate is effective in the initial and maintenance treatment of addisonian anemia. Autolyzed liver concentrate is more potent than liver extract-Lilly derived from the same amounts of liver. In the initial treatment of pernicious anemia, maximal effects have been obtained from a daily dose of autolyzed liver concentrate derived from between 150 and 200 Gm. of liver. For maintenance treatment a dose of from 1 to 8 teaspoonfuls daily, on the average 3 teaspoonfuls, has been found adequate.

TREATMENT OF PEPTIC ULCER
WITH VEGETABLE MUCIN

PRELIMINARY REPORT

FRANK R. FINNIGAN, M.D.

ST. LOUIS

Fogleson¹ reported in 1931 the results of twelve cases of peptic ulcer treated by mucin. He states, "The subjective symptoms disappeared within three days after treatment, the

most gratifying feature being the persistent absence of pain, which did not recur despite two grave dietary indiscretions in two patients with alcoholic tendencies."

The animal mucin used had many objectionable features. Fogleson's results stimulated further study and investigation to develop a vegetable mucin which would be efficacious and yet be without any of the objectionable features of animal mucin.

CASE REPORTS

Case	Sex	Age	Duration of Symptoms	Diagnosis	Treatment			Condition Before and After Treatment With Kao-Mucin	
					Previous	Present		Before	After
JH	M	34	2 yrs.	7-9-34. Obstructive duodenal ulcer. 3-23-35. Jejunal ulcer. Roentgen ray diagnosis.	1934. Gastroenterostomy. Regular diet. No symptoms until March 23, 1935. Roentgen ray disclosed jejunal ulcer.	Kao-mucin and ulcer diet	21	Nausea and vomiting. Constant pain. Test meal, free Hcl 54, total acidity 74. Partial relief from frequent feedings.	Complete relief from pain after third day. No return of symptoms after 21 days. After 21 days patient on regular diet except for raw foods.
LW	M	26	1 yr.	4-20-35. Duodenal ulcer. Roentgen ray diagnosis.	Alkalies and sippy treatment previous 8 months.	Kao-mucin and ulcer diet	3	No relief from previous treatment. Test meal, free Hcl 48, total acidity 78.	Pain controlled in 3 days. Tablets discontinued at that time—caused nausea. No pain for 60 days and on regular diet except raw foods.
FO	M	32	7 mos.	4-30-35. Duodenal ulcer. Roentgen ray diagnosis.	Sippy treatment. Alkalies and course of larostidin injections.	Kao-mucin and ulcer diet	21	Constant pain. No relief from previous treatment. Test meal, free Hcl 28, total acidity 40.	Pain relieved in two days. No symptoms after three weeks' treatment. After three weeks regular diet no raw foods.
WL	M	63	8 yrs.	1927-'35. Duodenal ulcer with polycythemia vera. Roentgen ray diagnosis.	1927. Sippy treatment. Poly v. controlled by phenylhydrazine per rectum. 1928. 3-9-35. No symptoms. 4-1-35. Diet and alkalies.	Kao-mucin Full diet	30	Severe pain in stomach began 4-1-35, not controlled by diet or alkalies. Test meal, free Hcl 40, total acidity 70.	Pain controlled in two days by Kao-mucin tablets. No. G. I. symptoms since 4-11-35. Regular diet since 4-11-35.
SJ	M	24	1 mo.	2-14-35. Duodenal ulcer. Roentgen ray diagnosis.	Sippy powders. No relief.	Kao-mucin	4	Sour stomach, pain and vomiting. Test meal, free Hcl 55, total acidity 116.	Pain controlled in 3 days on regular diet without raw foods after 3 weeks. No symptoms for 66 days after Kao-mucin tablets were discontinued.
CF	M	49	3 wks.	2-28-35. Gastric ulcer. Roentgen ray diagnosis.	First seen 2-28-35.	Kao-mucin and sippy diet	49	Epigastric pain, nausea and vomiting. Test meal, free Hcl 17, total acidity 40. Positive blood.	Nausea, vomiting and pain disappeared within 24 hours. All symptoms disappeared after second day and roentgen ray checkup disclosed ulcer entirely healed 4-1-35. Now on regular diet, no raw foods.
JD	M	48	10 days	3-18-35. Roentgen ray failed to disclose any lesion in stomach or gastrointestinal tract.	First seen 3-18-35.	Kao-mucin and ulcer diet	21	Epigastric pain, nausea and vomiting of blood. Test meal, free Hcl 60, total acidity 90.	Pain completely disappeared after 4 days. Diet gradually built up to include everything but raw foods. No recurrence of symptoms after fourth day.

1. Two Kao-mucin tablets every two hours 8 a. m. to 10 p. m. Dosage after first week 2 tablets three times a day between meals. The Kao-Mucin tablets were furnished by the Columbus Pharmacal Company, Columbus, Ohio.

In 1933, Jones, Ivy and Atkinson² published in a preliminary report excellent results in treatment of peptic ulcer with the use of a vegetable mucin, okrin, obtained from the pod of *Abelmoschus esculentus*.

Meyer, Seidmon and Necheles³ in 1933 reported on seventeen cases of peptic ulcer treated by vegetable mucin with gratifying results.

No doubt mechanical factors play a very important part in the formation of a chronic peptic ulcer. Mann, Morton, and McCann⁴ considered "the active mechanical factor in the duodenum to be the force of the impinging stream ejected through the pylorus." They consider the mechanical factor in the stomach "to be the paucity of protecting rugae in the prepyloric segment, particularly along the lesser curvature with its poor blood supply, and the convergence of the lines of force as suggested by Aschoff." Quoting K. K. Jones, et al, "Any substance, therefore, which can be taken in amounts to protect adequately the mucous membrane from the force of impinging stomach contents and the friction of coarse cellulose foods should be of some value in protecting the reparative granulations and epithelial cells of an ulcer." Therefore, as stated by Jones, et al, okrin apparently has a demulcent, protective action and contains no secretagogues and has a high content of glycuronic acid.

COMMENT

The above cases are presented as a preliminary report. It is extremely difficult in the therapeutics of peptic ulcer to make any conclusive demonstrations because remissions occur in the usual course of the disease and numerous and various methods have been found effective in treating this lesion. However, I think the response of patients confirms the clinical impression that vegetable mucin is of value in alleviating pain and in shortening the period of strict dietary régime. It will be noted that these patients were not relieved by other methods of treatment. None of them have had recurrences up to the present time.

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HYPERSENSITIVENESS TO PITUITARY EXTRACTS

Although hypersensitiveness to pituitary extract seems to be uncommon, Frank A. Simon and C. F.

Ryder, Louisville, Ky. (*Journal A. M. A.*, Feb. 15, 1936), believe that the occurrence of five cases in one hospital in less than two years suggest the possibility that some cases have been unrecognized and others unreported. It seems that this condition would be worth keeping in mind in cases of obscure reactions following delivery when pituitary extract has been used. This hypersensitiveness cannot be produced at will but occurs only in exceptional cases under conditions that are unknown at the present time. It is not merely a matter of certain individuals being predisposed while others are not. The predisposition, even in susceptible persons, is not always present. This is apparent from the fact that the authors' patients had previous injections of pituitary extract which were without effect in producing hypersensitiveness. This predisposition then is apparently present only in certain individuals at certain times. The analogy with hay fever is apparent. Only a relatively small percentage of those who are exposed become sensitized, and of those who do become sensitized many were exposed ineffectively for years before sensitization developed. The persistent, high degree of sensitivity, the presence of reagins and the family or personal history of allergy in two of the patients constitute further evidence that these are not cases of the ordinary anaphylactic type of hypersensitiveness such as may be produced at will in laboratory animals and in man by the injection of a foreign serum. The absence of positive skin tests in four children born of three sensitized mothers with positive skin tests constitutes evidence against the idea of transplacental transmission of hypersensitiveness. These cases undoubtedly represent organ specificity rather than species specificity, the specificity being directed toward some constituent of the pituitary gland of several animal species, including man.

SCARLET FEVER IMMUNIZATION DURING A SCHOOL EPIDEMIC

Harold S. Diehl and Robert G. Hinckley, Minneapolis (*Journal A. M. A.*, April 18, 1936), employed active and passive immunization procedures in an attempt to control an epidemic of scarlet fever among 436 students of an agricultural school. A preliminary Dick test of the group showed that 59 per cent of the boys and 62 per cent of the girls were susceptible. The number of new cases of scarlet fever declined abruptly after the administration of the third dose of scarlet fever toxin. A large proportion of the individuals had mild reactions to the toxin and approximately 5 per cent of the group were admitted to the infirmary after each injection. These reactions were of short duration and not serious, but when accompanied by a rash they introduced difficulties of diagnosis. Ninety-three per cent of a group of susceptible students who had received more than 11,000 skin test doses of scarlet fever toxin showed negative Dick tests six months later. Thirty-eight per cent of twenty-three other individuals who had had positive Dick tests at the time of the epidemic but received no toxin gave negative tests six months later. Scarlet fever antitoxin was administered prophylactically to twenty-five susceptible students who had been in close contact with patients with scarlet fever. Seventy-six per cent of these had serum reactions and 68 per cent moderately severe or very severe reactions. Five of the group who received scarlet fever antitoxin prophylactically developed scarlet fever. The results obtained with scarlet fever antitoxin for treatment were satisfactory in this series of patients.

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MAY, 1936

EDITORIALS

THE COLUMBIA SESSION

The Columbia Session of the Missouri State Medical Association which convened April 13, 14 and 15 at the Hotel Tiger was an excellent meeting despite the anticipation of the Session of the American Medical Association to follow so soon. The attendance was within fifty of that at the Excelsior Springs Session in 1935 which broke former records. Attendance at the general meetings was far better than at many previous sessions. The program was sufficiently short to allow time for discussions of the presentations and Dr. E. Lee Miller, Kansas City, President, was enabled to conclude each session in the time allotted to it.

The Boone County Medical Society members were efficient in their preliminary work and were excellent hosts at the special entertainment on Tuesday evening as well as throughout the session.

Approximately seventy-five members attended the dinner on Monday evening sponsored by the Committee on Maternal Welfare. Case reports were presented and Dr. Joseph L. Baer, Chicago, discussed the problems brought out in the reports. Members interested in obstetrics and maternal welfare were enthusiastic over the benefit derived from this session.

Dr. Austin A. Hayden, Chicago, addressed the secretaries of component societies at the annual Secretaries' Dinner, and presented a motion picture and talk on the "Headquarters of the American Medical Association" before the general assembly.

The following officers were elected: President-Elect, Dr. Dudley S. Conley, Columbia; Vice Presidents, Dr. A. H. Marshall, Charleston, Dr. James E. Stowers, Kansas City, and Dr. E. Y. Pare, Leeton; Secretary-Editor, Dr. E. J. Goodwin, St. Louis; Assistant Secretary

and Business Manager, Mr. E. H. Bartelsmeyer, St. Louis; Treasurer, Dr. John R. Caulk, St. Louis.

Dr. Ross A. Woolsey, St. Louis, was installed as President at the Wednesday afternoon session of the House of Delegates. Dr. Woolsey appointed the following members to committees: Dr. Earl C. Padgett, Kansas City, Cancer Committee; Dr. Morris Simpson, Kansas City, Committee on Medical Economics; Dr. Ralf Hanks, Fulton, Committee on Mental Health; Dr. Claude J. Hunt, Kansas City, Committee on Medical Education and Hospitals. The following members were reappointed on committees: Dr. E. J. Goodwin, St. Louis, Committee on Scientific Work; Dr. C. H. Neilson, St. Louis, Committee on Postgraduate Work; Dr. J. C. B. Davis, Willow Springs, Committee on Publication; Dr. W. L. Allee, Eldon, Committee on Public Policy; Dr. C. E. Hyndman, St. Louis, Committee on Defense; Dr. G. A. Johns, St. Louis, Committee on Mental Health; Dr. Jos. D. James, Springfield, Committee on Maternal Welfare; Dr. M. W. Pickard, Kansas City, Committee on Physical Therapy. These appointments were confirmed by the House of Delegates.

Dr. W. H. Breuer, St. James; Dr. A. R. McComas, Sturgeon, and Dr. W. M. West, Monett, were reelected Delegates to the American Medical Association. Dr. Carl F. Vohs, St. Louis, was elected to fill the vacancy created by the death of Dr. Emmett P. North, St. Louis.

Dr. J. B. Wright, Trenton, Councilor of the Fourth District, resigned and Dr. Arthur S. Bristow, Princeton, was elected Councilor of that district.

The Association accepted the invitation of the Cape Girardeau County Medical Society to meet in Cape Girardeau in 1937.

KANSAS CITY SESSION AMERICAN MEDICAL ASSOCIATION

The American Medical Association 1936 Annual Session will open in Kansas City, May 11, and continue through May 15. All General Assembly lectures, General Scientific Assembly Sections and scientific and technical exhibits will be held in the new Municipal Auditorium. Headquarters of the House of Delegates and officers will be in the Muehlebach Hotel. This will be the eighty-seventh Annual Session.

Missouri members are most happy that the state will be host to the American Medical Association this year. The last session to convene in Missouri was in St. Louis in 1922. The Kansas City members have been energetic in their preparations for the Session and members

throughout the state will be proud of Jackson County as one of its component parts. The new Auditorium is well planned to accommodate the session.

The House of Delegates will convene on Monday, May 11, at 10 a. m. The Scientific Assembly will open with a general meeting on Tuesday evening and the sections will meet on Wednesday, Thursday and Friday.

Among special entertainments planned are a dinner and entertainment complimentary to the delegates and officers on Monday evening with the Kansas City Committee as hosts; a luncheon given by the Board of Trustees complimentary to delegates and officers on Tuesday noon; the opening general meeting will be on Tuesday evening; the President's Reception will be given Tuesday evening and a "Bring-Your-Husband" dinner will be given by the Woman's Auxiliary on Tuesday at 6 p. m. A number of class and fraternal dinners and luncheons have been planned. The golf tournament will be held on Monday. The American Medical Skeet and Trap Shooters' Association has been formed by a group of Kansas City physicians with the hope that it will be a permanent organization. The first meeting will be held the afternoon of May 13.

Dr. E. H. Skinner is chairman of the Local Committee on Arrangements; Dr. James R. McVay is coordinating chairman; Dr. Frank R. Teachenor, Dr. E. H. Shorer and Dr. Frank D. Dickson, vice chairmen; Dr. Morris B. Simpson, secretary, and Dr. J. F. Hassig, treasurer. Dr. Rex L. Diveley is chairman of the Subcommittee on Sections and Section Work.

It is hoped that many members who are not now Fellows will become such in time to participate in the Kansas City Session. Any member in good standing may make formal application for fellowship to the Judicial Council of the American Medical Association. Fellowship includes subscription to the *Journal* of the American Medical Association and the cost is \$7 per year. Application blanks may be obtained from the Secretary of the Missouri State Medical Association.

Meeting in Kansas City concurrently or near the time of the American Medical Association are the following organizations: American Society of Clinical Pathologists, May 6 to 9; American Therapeutic Society, May 8 and 9; American Association of Medical Milk Commissions, May 11 and 12; Association for the Study of Allergy, May 11 and 12; Association for the Study of Internal Secretions, May 11 and 12; Woman's Auxiliary of the American Medical Association, May 10 to 15; Association for the Study and Control of Rheumatic Diseases, May 11; American Heart Association,

May 12; American Academy of Pediatrics, May 11 and 12; American Proctologic Society, May 11 and 12; Women Physicians of the American Medical Association, May 10 to 12; American Radium Society, May 11 and 12; American College of Radiology, May 10 to 13; American Board of Otolaryngology; American Board of Ophthalmology; American Board of Obstetrics and Gynecology; American Board of Dermatology; American Board of Pediatrics; American Board of Radiology, and the American Board of Orthopedic Surgeons. The American Association of Clinical Laboratory Technicians will convene in Excelsior Springs at the Elms Hotel, May 11 to 13.

Missouri members who will deliver addresses at the Session are Drs. Earl C. Padgett, Kansas City; Arthur E. Hertzler, Halstead, Kansas; and Willard Bartlett, Jr., Vilray P. Blair, Julius Jensen, John Green, Harvey D. Lamb, James B. Costen, Evarts A. Graham, Jean V. Cooke, T. C. Hempelmann, Joseph F. Bredeck, D. K. Rose, J. Albert Key, H. W. Soper and Frank D. Gorham, St. Louis, and A. J. Hofsommer, Webster Groves. Those who will open discussions are Drs. Ralph H. Major, Peter T. Bohan, Albert N. Lemoine, Virgil W. McCarty, O. Jason Dixon, Sam E. Roberts, E. H. Skinner, W. W. Duke, Thomas G. Orr, Frank R. Teachenor, C. C. Dennie, Richard L. Sutton, Jr., Frank D. Dickson, Robert M. Schaufler, Herbert J. Rinkel and C. J. Hunt, Kansas City; Jacob Kulowski, St. Joseph; M. F. Arbuckle, Roland M. Klenme, French K. Hansel, Ernest Sachs, Louis L. Tureen, Sidney I. Schwab, Joseph J. Gitt, Clinton W. Lane, L. P. Gay and Meyer Wiener, St. Louis.

VITAMINS AND INFANT WELFARE

During the last half century medicine has been advancing from the empiricism which determined its earlier successes into a scientific understanding of the metabolic processes of the animal body. This increase in knowledge has been won in the laboratory. In the field of nutrition, laborious observation of the effect of withdrawing certain nutrients from the diet has been followed by equally laborious observation of the return to health which follows the addition of the interdicted food to the animal dietary. From these observations at times rather sweeping generalizations have been reached. There has been a decided tendency to apply the conclusions of these experiments in uncritical fashion to the nutritional needs of man and child.

Specifically, we might describe the researches leading to the knowledge that rickets is asso-

ciated with vitamin D deficiency. All the information was obtained from observation of small animals—rats, mice, etc. Meticulous experiments proved conclusively that cod liver oil added to the diet of the rachitic animal cured the rickets. The specious conclusion was reached that since some children have rickets all children should be fed cod liver oil whether they need it or not. To offer an insidious syllogism, using the ubiquitous spinach as the terrible example, we suggest: (1) spinach contains iron; (2) children need iron; (3) therefore, children should eat spinach, thereby get their iron. As far as we are aware no one has ever shown a case of spontaneous rickets occurring in a wild rat or mouse not dependent upon the whimsicalities of a cook for its food supply.

It seems to have been too often overlooked that the same nature which supplied cod liver oil also supplies vitamin D in other foods, even though in small amounts. It seems to have been too often overlooked that the generous tanning which children receive from the sun during the summer months is accompanied by the formation of considerable quantities of vitamin D (through the activation of ergosterol) in the body, a supply which may be reasonably expected to last well into the cooler months of the year. Perhaps, after the peak of winter has been reached and until the warm glow of May arrives, cod liver oil may have a proper place in the regular dietary of the healthy apartment bred infant.

Clinicians generally are most uncritical in their application of the results of laboratory investigation. In the matter of infant feeding they have rarely concerned themselves with the totality of the diet; they have, on the other hand, been overly exercised with the inclusion of certain specific foodstuffs. Under such circumstances the observations of Zahorsky¹ reported elsewhere in this issue deserve careful scrutiny. This clinician has seen certain children who failed to do well despite seeming opulence. He made careful investigation of their dietary habits and found, for example, that even if mother could not force the fruits and cereals into their already overburdened stomachs, they did get their cod liver oil. Such infants showed overgrowth; they were too large for their age; they were also too sluggish for any age. Fontanels closed ahead of time thus inhibiting any chance the brain might have had to grow larger. This author draws an apt comparison between the modern child and the heifer, which is to be fattened for market at the earliest possible moment. He makes a plea to regard the child as

different from the animal of the stock farm in whom earlier maturity makes for larger profit. Let children be children. Let them attain physical maturity at a reasonably slow pace. Do not force them into the early bloom and quick withering of the hot house flower.

The tendency of the average reader may be to skip the observations of Zahorsky as the harmless meanderings of an old-fashioned physician. They cannot be treated so lightly when the fate of a host of remedies introduced into the medical armamentarium during the last half century is recalled. We believe much consideration should be given to his plea that vitamin preparations be used as medicines, not blindly included in the diet of every infant. Zahorsky mentions quinine as a remedy once used by good physicians in the treatment of a host of diseases. Today, it is valuable only for the cure of malaria. We cannot overlook the fact that large doses of cod liver oil concentrates have been shown by American, German and Scandinavian research workers to produce harmful effects in both humans and animals; and at the present moment serious minded physicians in some eastern cities question whether the increase in heart disease found in school children may not be due to the inclusion of excessive amounts of vitamin concentrates in their diet.

Rather than hastily dismissing Zahorsky's plea for a more critical attitude toward the infant's diet let us call for further reports from clinicians. We must remember that the results of the clinic are necessarily inexact and are not susceptible to the careful scrutiny of the laboratory investigator. Nor must we forget the dictum of Engelbach of St. Louis who first raised the cry that the fat child was not always the healthy one; that in fact he may be more severely malnourished than his skinny playmate. Perhaps Zahorsky's observations suggested an etiologic basis for some cases of overgrowth and obesity.

AMERICAN MEDICAL GOLFING ASSOCIATION

American Medical Association golfers have a real treat in store for them in the Kansas City courses at the twenty-second annual tournament to be held May 11. Kansas City's terrain is hilly and the rolling fairways, woods, creeks and carefully-placed greens will be at their best in May. The two clubs chosen for the tournament are the Mission Hills Country Club and the Kansas City Country Club. The Mission Hills club house is in Missouri but the golf course is just across the line in Kansas. The club house

1. Zahorsky, J.: Overgrowth in Infants from Superalimentation, *J. Missouri M. A.* This issue, p. 186.

stands upon a little knoll surrounded by massive trees and overlooks the grounds. There is a broad half circle roof deck with tables and easy chairs under the open sky where guests may lounge, enjoy the Mission Hill breezes and watch bathers in the tank below or groups of golfers on the course beyond.

The Kansas City Country Club house is a beautiful new white building stretching lazily across the horizon, and set in the hills of Johnson County, Kansas, hardly a mile distant from the Mission Hills Club. The approach is along winding roads flanked by rustic rail fences covered with rambler roses, across fords and through well kept natural woodlands. Both clubs are picturesque and typical of this rich, verdant, livable part of Kansas. The scenery and attractive homes of Kansas City are well known for their charm and appeal.

The tournament will be 36 holes. Greens' fee and the dinner will cost \$3. Old members of the association will be expected to pay \$1.50 tournament fee for office expenses, maintenance of old prizes and securing new ones. New members must pay \$3 enrollment fee after which they become permanent members of the organization.

Beside the regular trophies which include the famous "Will Walter" trophy, the driving golfer of Detroit, and others, numerous prizes will be awarded by the local committee on arrangements ranging from cameras and radios through cigarettes and trick safety razors.

There will be eight flights (Medal Play): (1) Championship Flight, (2) First Flight, (3) Second Flight, (4) Third Flight, (5) Fourth Flight, (6) Maturity Event, (7) Old Guard Championship, and (8) Kickers' Handicap (blind bogey). Each event will have its own permanent trophy, the property of the American Medical Golf Association, won and retained for a year by the winner. The first group will probably tee off about 7 a. m. and all must tee off for their first 18 holes before 3 p. m. Beer will start about 5:30 p. m. and the troubadour about 6 p. m. Dinner will be at 7 p. m. with reports, prizes, stories, etc., and the whole thing over by 10:30 or 11 o'clock.

Bill Burns, 2020 Olds Tower, Lansing, Michigan, is executive secretary, and Dr. Clarence S. Capell, Rialto Building, Kansas City, is chairman of the Kansas City golf committee.

MATERNAL AND CHILD HEALTH WORK UNDER THE SOCIAL SECURITY ACT

The Social Security Act among other things provided for the appropriation of \$4,000,000

annually to enable the Federal Government to cooperate with state agencies of health in developing services for the health of mothers and children, especially in rural areas. This amount was to be apportioned among the states according to the live birth rate and the money each state appropriated, this amount to be matched by the Government.

The work is under the Children's Bureau of the Department of Labor and all plans of states must be approved by this Bureau. The program, as proposed by the Division of Child Hygiene of the Missouri State Board of Health, has been approved and the work will soon be in operation. Details of the program are set forth in a letter written by Dr. H. S. Gove, Director of the Division of Child Hygiene of the Missouri State Board of Health, to the Children's Bureau which is published on page 203 of this issue.

DIPHTHERIA ERADICATION

Deaths from diphtheria decreased 37 per cent in St. Louis in 1935 and the number of cases 31 per cent. The St. Louis Department of Public Welfare, Health Division, conducted an educational campaign last year to acquaint residents with methods for the prevention of diphtheria and it is the belief of that department that the campaign was an important factor in accomplishing this improvement. In spite of the large decrease in 1935 there were 665 persons contracted diphtheria, twenty-four of whom died.

Diphtheria is a controllable disease and can be eradicated from a community but only with the full cooperation of every person. The Health Commissioner is determined to attain this goal and an educational campaign will be conducted during May this year. The campaign will be opened with a mass meeting in the Opera House of the Municipal Auditorium, May 4, at 8:30 p. m. The following program will be presented: "Opening Remarks," Dr. Joseph F. Bredeck, Health Commissioner; "The Community's Response to a Message of Health as Reflected in the Diphtheria Figures of 1935," Mayor Bernard F. Dickmann; "Plans for Banishing Diphtheria From St. Louis," Joseph M. Darst, Director of Public Welfare; "What Is Diphtheria and Can It Be Prevented?" Dr. Moyer Fleisher, Professor of Bacteriology, St. Louis University School of Medicine; "Are Immunizing Agents Against Diphtheria Safe and Effective?" Dr. J. J. Bronfenbrenner, Professor of Bacteriology, Washington University School of Medicine; "What Is the Schick Test and How Does It Determine Susceptibility to Diphtheria?" Dr. Lee D. Cady, President, St. Louis Medical Society.

AMERICAN PSYCHIATRIC ASSOCIATION

Specialists in nervous and mental diseases will convene at the ninety-second annual meeting of the American Psychiatric Association in St. Louis, May 4 to 8, with headquarters at the Hotel Jefferson. Dr. George A. Johns, St. Louis, is chairman of the committee on arrangements.

The meeting will be opened formally Tuesday by the president, Dr. Clarence O. Cheney, New York, followed by addresses of welcome by Drs. Lee D. Cady and W. McKim Marriott, St. Louis, and the Rev. Father Alphonse M. Schwitalla, S. J., St. Louis. There will be a pre-convention meeting on Monday of the sections on convulsive disorders and forensic psychiatry. On Wednesday morning there will be a joint session with the American Psychoanalytic Association for a discussion of laboratory and clinical reports. Problems of administration will be discussed on Thursday and clinical studies will be continued at a joint session with the American Psychopathological Association. Fourteen round table groups will convene Thursday evening for discussion of special phases. The meeting will end Friday after a joint session with the section on mental defects. The annual address will be given on Wednesday evening by C. Judson Herrick, Ph.D., Professor Emeritus, University of Chicago, on "Control of Behavior: Its Mechanism and Evolution."

The American Psychiatric Association was founded by Benjamin Rush in 1844 and now has approximately 1800 members in the United States and Canada. Originally confined to physicians engaged in work in mental hospitals, it has grown both in size and in scope of its interests and aims and now embraces directors of psychiatric and child guidance clinics, mental hygiene clinics and psychiatrists in public and private hospitals.

Missouri members who will appear on the program are Drs. Leland B. Alford, W. W. Graves and Robert E. Britt, St. Louis, and Dr. Andrew L. Skoog, Kansas City.

NEWS NOTES

The American Neisserian Medical Society will hold its second annual meeting on May 18, 1936, in the Hotel Statler, Boston, Massachusetts.

Dr. Richard L. Sutton, Jr., Kansas City, was the guest of the Labette (Kansas) County Medical Society at Parsons, Kansas, February

26 and spoke on "Urticaria, Eczema and Dermatitis Venenata."

Dr. M. Hayward Post, St. Louis, was a guest of the Tennessee State Medical Association at Memphis, April 14 to 16, and presented an address on "Tuberculin Therapy in Ocular Tuberculosis."

Dr. Albert N. Lemoine, Kansas City, was a guest speaker at the annual meeting of the Oklahoma State Medical Association at Enid, Oklahoma, April 8. He spoke on "Treatment of Ocular Manifestations of Syphilis."

Dr. Horace W. Soper, St. Louis, was the guest of honor at a dinner given by Dr. J. C. Lyter, St. Louis, on April 17. Following the dinner Dr. Soper spoke on "Gastro-Intestinal Therapy." About one hundred physicians attended the dinner.

The St. Louis Trudeau Club met April 7 in a joint session with the St. Louis Medical Society at the Medical Society Building. Dr. Henry C. Sweany, Chicago, medical director of research at the Chicago Municipal Tuberculosis Sanatorium, was the guest speaker and discussed "Pathogenesis of Pulmonary Tuberculosis."

Dr. James Ewing, New York, director of the Memorial Hospital, New York, and a director of the American Society for the Control of Cancer, was the guest speaker at a dinner in St. Louis, March 23, sponsored by the directors of the Barnard Free Skin and Cancer Hospital. On March 24 Dr. Ewing addressed the St. Louis Medical Society on "The Etiology of Cancer."

The American Psychiatric Association which will convene in St. Louis, May 4 to 8 will hold a joint session with the St. Louis Medical Society in the evening of May 5. On May 3 the St. Louis Medical Society and the Missouri Society for Mental Hygiene will hold a joint open meeting at the St. Louis Medical Society Building, St. Louis, at 3 p. m. Dr. Charles Macfie Campbell, Boston, professor of psychiatry, Harvard University, and director of the Boston Psychopathic Hospital and president-elect of the American Psychiatric Association, will speak on "Mental Health: Its Social Significance."

The Missouri Association for Social Welfare and the Kansas Conference of Social Work held a joint session in Kansas City, April 2, 3 and 4. The theme of the conference was "Social and Economic Security." Missouri members who appeared on the program were Dr. W. G. Stewart, Columbia; Dr. G. Wilse Robinson, Jr., and Dr. B. Landis Elliott, Kansas City, and Dr. Paul J. Zentay, St. Louis.

Dr. Frank D. Dickson, Kansas City, and Dr. William T. Coughlin, St. Louis, were guests of the Nebraska State Medical Association at Lincoln, April 7 to 9. Dr. Dickson presented addresses on "Importance of Immediate Splinting of Fractures" and "Fractures of the Ankle." Dr. Coughlin spoke on "What Qualifies a Doctor to Do Major Surgery" and "Surgical Treatment of Gallbladder Disease."

A consulting staff for the Missouri State Tuberculosis Sanatorium, Mount Vernon, was organized at a meeting at the sanatorium, April 4. The purpose of the organization is to improve the work at the sanatorium. Dr. Wallis Smith, Springfield, was elected president of the staff, and Dr. R. H. Runde, Mount Vernon, secretary. Drs. Smith, Runde and W. J. Bryan, superintendent of the institution, will be an administrative committee. Approximately forty physicians were present at the meeting including physicians from Kansas City, Columbia, Joplin, Springfield and St. Louis.

The St. Joseph Clinical Society held its annual spring clinics March 23, 24 and 25 with headquarters at the Robidoux Hotel. The meeting opened with an evening public session on March 23 at which Dr. W. W. Bauer, Chicago, Director of the Bureau of Public Health and Instruction of the American Medical Association, was the guest speaker. His subject was "Popular Beliefs That Are Not So." Other guests at the sessions were Dr. Augustus O. Pohlman, Omaha, Nebraska; Dr. C. A. Stewart, Minneapolis; Drs. H. L. Smith and Roger L. Kennedy, Rochester, Minnesota; Drs. William H. Olmsted, Roland M. Klemme and Duff S. Allen, St. Louis; Dr. Ferdinand C. Helwig, Kansas City, and Dr. Ray M. Balyeat, Oklahoma City. Dr. Winton T. Stacy is president of the organization; Dr. L. Paul Forgrave, vice president, and Dr. Claude S. Grant, secretary.

Venereal Disease Information is a monthly publication prepared by the United States Public Health Service for the medical profession. The purpose is to provide in condensed form a

monthly summary of the scientific developments in the diagnosis, treatment and control of syphilis and gonorrhea. More than three hundred fifty American and foreign journals are reviewed for this work and abstracts are made of articles. An index for the year is published with the December issue. During the coming year it is planned to publish several original articles by outstanding authorities in this country in this field. Thousands of physicians find this publication useful in enabling them to keep abreast with developments in venereal disease work. This service can be obtained for 50 cents a year, payable to the Superintendent of Documents, Government Printing Office, Washington, D. C.

Missouri members who will appear on the program of the thirty-seventh annual meeting of the American Therapeutic Society in Kansas City, May 8 and 9, are Dr. Elsworth S. Smith, St. Louis, "Address of the President"; Dr. C. H. Neilson, St. Louis, "Some Observations on the Treatment of Functional Diseases"; Dr. Alphonse McMahon, St. Louis, "The Effects of the Thyroid Gland Upon the Emotions"; Dr. Paul F. Stookey and Dr. Louis Scarpellino, Kansas City, "Specific Treatment of Staphylococcal Infections of the Skin"; Dr. O. R. Withers, Kansas City, "Problems in the Treatment of Hay Fever"; Dr. C. C. Dennie, Kansas City, "The Value of Heat as an Accessory in the Treatment of Syphilis in All Stages"; Dr. Ralph H. Major, Kansas City, "The Birthplace of Hippocrates: Personal Experiences in a Visit to the Island of Cos." Dr. Elsworth S. Smith, St. Louis, is president of the society; Dr. Alphonse McMahon, St. Louis, treasurer, and Dr. Logan Clendening, Kansas City, chairman of the local committee on arrangements. All sessions will be held in the Phillips Hotel and all members of the profession are invited to attend.

Books for Leisure Moments

"The preparation of one's mind to face a surgical operation is a task to which too little attention is given. One goes to the doctor for a discomfort which one believes is of no significance. Then the need for surgical treatment is discovered and presented at once to the sufferer or to his family. Within a few days the patient is expected to face the chances and sufferings of surgical treatment with equanimity. He is shipped to the hospital and there is kept busy, as interns collect a careful history of the onset of his disease and do numerous physical examinations. But no more attention is given to his feelings until the surgeon arrives. Perhaps not then. . . ." So write Dr. Richard C. Cabot of the Massachusetts General Hospital and the Reverend Mr. Russell L. Dicks, a Presbyterian minister, clergyman

by appointment to the hospital, in their new book "The Art of Ministering to the Sick" (Macmillan).

These authors call attention to the important extra-medical problems which the sick patient must face. They plead for a large appreciation of the emotional and psychological difficulties of the patient. They apply that philosophy even if the patient has no religious affiliation. They agree with the view of Dr. James H. Means, Chief of the Medical Service of the Massachusetts General Hospital, that the person who gets sick should send for his minister just as soon as he sends for his doctor. But they do not look for the minister to prepare the patient for death. That is the smallest part of his task. Nor do they expect him to assume the function of the psychiatrist who must readjust the mental quirks of the psychoneurotic.

The minister may perform a valuable service in interpreting the hospital and his disease to the sufferer. He may have to develop within the patient the will to live or the desire to cooperate with his medical attendants, that the duration of the disease may be lessened. Or, he may bring a soothing calm to the mind of the patient, enabling him to surmount the unknown immediate future which he fears. Indirectly, he may instill valuable religious beliefs in him, but only when the patient manifests a desire for religion. The minister may take over the task of assuaging the patient's concern with his future after an automobile accident has cut off his leg or a high explosive shell has smashed his face.

There is no reason for the minister alone to bear the burden of the tasks which Cabot and Dick outline. The alert physician may just as well take them over. But he will probably lack the time required for the job. The old-fashioned family practitioner of whom we hear so much doubtless combined the function of physician and minister as he sat patiently by the bedside listening to the complaints of the patient, reassuring him in the face of the darkness that seemed to hem him in. The modern physician is too hurried. Or if not hurried, his training has too rarely allowed time or opportunity to consider these extra-medical vital concerns of the patient. The bursted appendix or the broken leg or the decompensated heart cannot be viewed only from the point of view of pathology; they must be seen as interruptions in the life course of the patient; sometimes interruptions so serious that they require reorganization of the whole future of the patient. It is just as much the province of the physician to heal the patient as it is to heal his leg or to remove his appendix. This book infers the reason why certain cultists have been so successful in spreading their pernicious doctrines. They appeal to the whole patient. They view his suffering through his mind; they heal the mind first, the body later. A judicious combination of the two methods is to be preferred.

The authors believe their purpose may be furthered by seeing the patient grow spiritually during his illness. This does not of necessity demand a return to the church or an acceptance of its teachings. It is an abstract concept rather difficult of exact definition but with many implications. It can perhaps better be defined by telling what it is not. It is not the satisfaction which one derives from a contemplation of success; nor is it the remorse which one associates with failure. It is not all pleasure and it is not all pain. There should be no special feeling associated either with success or with failure. There should, rather, be unmeasured acceptance of the lot which is forced upon us. At the same time it is not the fatalistic resignation of the low caste Hindu. The soul of each individual will sense this "growth" and the individual will

be made glad by his progress. Self-defense, self-pity, bitterness, loneliness, laziness, smugness, all these prevent growth. Of several tentative definitions offered by the author this inexact one seems the best: "Growth takes place in character, not toward character; in wisdom; not toward it. There is no goal which we approach."

The authors suggest six methods of achieving their purpose. Listening permits the patient to pour out his troubles, perhaps better to reorient himself by the force of his own thinking. The listener must be purposive, only occasionally directive in his listening. Quietness affords communion between the patient and minister, perhaps with a third person who is always present at such meetings, God. There is no need for words. These three personalities of the sick room commingle to strengthen each other in silent contemplation. Note-writing is advised for the minister in the same form and for the same purpose as that of the physician who utilizes copious bedside notes not only to record the progress of his patient but also to further his own understanding of the diagnostic or therapeutic problem. It enables a quicker understanding of the patient's emotional uncertainty by the minister; it enables the latter to discover a point of contact with the patient which might otherwise, and in the difficult case would, be overlooked. Prayer and recitation of the Scripture are recommended as might be expected. Creative assertion, the direct effort to show the patient kinship with God, is valuable when used rarely and with discretion. To the end that the minister may learn of the technic of service for the sick Dr. Cabot acted as one of the founders of the Council for the Clinical Training of Theological Students in 1930, an organization which offers to the novice the opportunity for internship similar to that offered medical students. Since that time the Earhart Foundation has been formed for a similar purpose.

The union of physician and minister in the preparation of this book shows once more the essential kinship of these two branches of the healing art. It points the way to a more complete service for the sick. Yet it can in no way be considered a reversion to the methods of the priest-physician. It does not propose magical incantation as a way of treating disease. It affords a rational interpretation of the myriad of problems involved in the treatment of the ill. If perchance, the doctor is an all-round man like Grenfell in Labrador or Torrance in Galilee, then he may combine the functions of clergyman and physician. If he is not, and the complex minutiae of modern medical training make it unlikely that he can be, then in the interest of the sick person the combined efforts of physician and priest are to be invoked to the end that there may be early restoration of health. The mental poise that must accompany any degree of physical incapacitation may be so achieved. Dr. Cabot and the Reverend Mr. Dicks offer a timely suggestion toward the attainment of that necessary rapport.

OBITUARY

GEORGE GELLHORN, M.D.

George Gellhorn, internationally known gynecologist and late member of the St. Louis Medical Society, passed away in his sleep in St. Louis on the morning of January 25, 1936.

He was born in Breslau, Germany, November 7, 1870, the son of Adolph and Rosalie (Pincus) Gell-





GEORGE GELLHORN, M.D.

horn. He was educated at the Gymnasium, Ohlau, Germany, and graduated in medicine from the University of Wurzburg in 1894. Trained with a Teutonic thoroughness that characterized his entire professional life, he served in the clinics in Berlin, Jena and Vienna from 1894 to 1899 when he came to America to practice his specialty in St. Louis.

Endowed with an unusual vigor and capacity for work, he had both the will and the ability to attain the preeminence in which he was held by his colleagues. He was that rare combination of practical clinician and creative investigator. Only the evening before his death he voiced the opinion that all research is not limited solely to test tubes, that accurate and systematic clinical recording of diagnoses and methods employed in diagnosis and treatment, together with the results obtained, all were valuable aids for practitioners to study. At the time of his death, he was investigating three different pieces of clinical research.

His industry was phenomenal and his world wide known publications showed a high level of literary excellence. He had a speaking as well as a reading knowledge of several foreign languages that enabled him to be intimately informed on the medical literature of those countries. With this widespread knowledge of gynecological procedures, he was early to adopt such measures as to him seemed sound. He had the courage of his convictions to a marked degree and was uncompromising in defense of them.

The complete honesty and sincerity of the man were always evident in his discussions and published articles, and these qualities together with his professional learning and skill gave him the recognition that was his due.

His enthusiasm and painstaking care in aiding students, interns and young practitioners never grew old. His stimulating influence over the younger men for-

tunate enough to work with him was a source of delight to him and much profit to his beneficiary. As a teacher he had few equals and no superiors.

In 1903, he married Miss Edna Fischel of St. Louis, who, together with four children, George, Walter F., Martha E. and Alfred A., survive him. There was a fine spirit of mutual understanding and good fellowship pervading his home.

Dr. Gellhorn was professor of gynecology and obstetrics and director of the department in the St. Louis University School of Medicine from 1922 to 1932. He was professor of clinical obstetrics and gynecology in the Washington University School of Medicine since 1932. He was also gynecologist to the Barnard Free Skin and Cancer Hospital, gynecologist and obstetrician to St. Luke's Hospital and the St. Louis City Hospital; associate gynecologist and obstetrician to the Barnes and St. Louis Maternity hospitals; consulting gynecologist and obstetrician to the Jewish and St. Louis County hospitals; member of the American Gynecological Society of which he was president in 1931; member of the American Gynecological Club of which he was president in 1915. He was also a member of the Deutsche Gesellschaft Gynaekologie, American Medical Association, St. Louis Medical Society, St. Louis Gynecological Society, etc. He was a member of the University and of the Town and Gown Clubs.

Those of us who had the good fortune to enjoy his inspiration and teaching hope to carry on as he would have us do.—G. D. R. from the *Weekly Bulletin* of the St. Louis Medical Society.

JOSEPH L. McDERMOTT, M.D.



Dr. J. L. McDermott, Kansas City, was born in Independence, sixty-one years ago and was educated in the schools of his native city. For a time he was principal of one of the Independence high schools before taking up the study of medicine. He graduated from the University of Missouri in 1899 and from the School of Medicine of the University of Kansas in 1907. He became interested at once in the study of physiotherapy and radiology and was appointed assistant in the University of Kansas in that department, finally becoming head of that department which position he occupied until his death.

In 1913 he took postgraduate study in Vienna, Berlin, London and Paris. He was a staff member of St. Joseph Hospital and chief of staff of that hospital in 1932 and served his internship at St. Margaret's Hospital during his student days. He was radiologist for years at St. Joseph and University of Kansas hospitals.

He was a member of the Jackson County Medical Society and a member of its executive council when he died, also a member of the Missouri State Medical Association, the Kansas City Academy of Medicine, the Southwest Clinical Society, the American Medical Association and the Radiological Society of North American and the Knights of Columbus.

His wife, Mrs. Sadie McVey McDermott, of the home, 205 West 68th Street Terrace, and a sister, Mrs. Mary E. Costello, Buckner, survive.

Dr. McDermott died March 6, 1936, at St. Joseph's Hospital of septicaemia. Funeral services were conducted by the Rt. Rev. Monseigneur McKay at St. Peter's Catholic Church, assisted by the Rt. Rev. Messigneurs Tiernev, Keyes, McCarthy and Rev. Father Downing. The Rt. Rev. Monseigneur McKay preached the funeral oration and paid a high tribute to the life of Dr. McDermott. The church was well filled and more than one hundred physicians were present to pay their last respects to a colleague whom all honored and

held in high esteem. Interment was in Calvary Cemetery in Kansas City.

While in Paris Dr. McDermott gave a great deal of study to the Currie and Regoud radium treatment at the Radium Institute. He saw a great many malignant cases and did a great deal of study in deep roentgen ray therapy and radium in such cases.

He was a man of retiring and quiet disposition, sympathetic, careful and kind in treating these patients. He had a large circle of medical and personal friends. He was a courteous and accomplished gentleman whose kindness of heart his friends and patients have experienced. May he now have eternal life.—H. F. in the *Jackson County Medical Journal*.

MULTIPLE TUMOR SYNDROME IN THE MALE: CARCINOMA OF THE BREAST, PLEOMORPHIC SARCOMA OF THIGH AND NEUROFIBROMAS OF SKIN

George G. Davis, Henry A. Hanelin and Theodore C. Mouzakeotis, Chicago, (*Journal A. M. A.*, April 18, 1936), observed a combination of neoplasms in one individual, each having a different site of origin and location and each presenting an independent clinical problem. It is the combination of a malignant tumor of the thigh and papillary growths of the skin with the relatively infrequent carcinoma of the male breast. The case is that of a white man, aged 57, who clinically and pathologically exhibited a multiple tumor syndrome, each neoplasm being independent of the other and arising from different anlagen; the tumors were removed surgically and up to the present date the patient has shown no evidence of metastases. He appears to be progressing physically under radiation therapy. Carcinomas of the male breast are responsible for 1.24 per cent of the carcinomas of the breast in both sexes. Carcinomas are eighty times more prevalent in the female breast than in the male breast. Surgical excision combined with postoperative irradiation has been found to be the treatment of choice. Skeletal muscle sarcomas may be derived from any of the contiguous and continuous structures anatomically associated with the muscle; treatment here is preferably surgical excision followed by postoperative irradiation. Neurofibromas of the skin are relatively benign neoplasms and in the present instance did not show any evidence of malignant change.

SPECIAL FORM OF FUNCTIONAL PSYCHO- NEUROSES APPEARING IN AIRPLANE PILOTS

Harry G. Armstrong, Dayton, Ohio (*Journal A. M. A.*, April 18, 1936), bases his remarks on a series of 163 unselected airplane pilots. Their ages ranged from 22 to 50 years inclusive, their flying experience from one to eighteen years and their total flying time from 400 to 5,680 hours. Of the group studied 11.04 per cent suffered from a special form of the psychoneuroses, which affected 3 per cent of those in the age group 22-29, 50 per cent of those in the age group 30-39, and 57 per cent of those in the age group 40-49. The data presented were derived from close personal observation of each individual for from six months to three years, annual and semiannual physical examinations for flying, and professional attendance on all accidents and illnesses occurring in this group.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1936

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 19, 1935.

Montgomery County Medical Society, January 7, 1936.

Ste. Genevieve County Medical Society, January 8, 1936.

Camden County Medical Society, January 9, 1936.

Dent County Medical Society, January 13, 1936.

Perry County Medical Society, January 17, 1936.

Webster County Medical Society, February 4, 1936.

Moniteau County Medical Society, February 29, 1936.

Benton County Medical Society, April 6, 1936.

Phelps-Crawford County Medical Society, April 6, 1936.

Jefferson County Medical Society, April 20, 1936.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society met February 5 with twenty-six members present. The meeting was called to order at 8 p. m. at the Missouri Methodist Hospital by the president, Dr. J. M. Allaman, St. Joseph.

The regular order of business was suspended and Dr. Jacob Kulowski, St. Joseph, read a paper on "Some Phases of Internal Derangement of the Knee Joint." The points brought out in the interesting paper were illustrated by slides.

A letter from Dr. A. B. McGlothlan acknowledging the flowers sent at the death of his father was read.

O. E. WHITSELL, M.D., Secretary.

CASS COUNTY MEDICAL SOCIETY

The Cass County Medical Society held its regular quarterly meeting at the office of Dr. M. P. Overholser, Harrisonville, at 7:30 p. m., March 12, Dr. B. B. Tout, Archie, president, in the chair.

A letter from Dr. F. B. Ellis, Garden City, stating that it would be impossible for him to serve as vice president for 1936 was read by the secretary. Dr. L. V. Murray, Pleasant Hill, was nominated and elected to serve as vice president for 1936.

The application of Dr. E. M. Griffith, Harrisonville, for membership was read. This was referred to the board of censors to be reported on at the next regular meeting.

The secretary read an announcement from the Johnson County Medical Society of a public meeting to be held at the court house in Warrensburg on March 17

to which everyone was invited. The subject of "Cancer" was to be discussed by guest speakers.

Dr. W. G. Thompson, Holden, read a paper on "What Your Radiologist Can Help You Do." The paper was discussed by Drs. C. W. Luter, Butler; E. R. Cooper, Warrensburg; E. Lee Miller, and H. S. Crawford, Kansas City.

Dr. E. Lee Miller, President of the Association, delivered a splendid address. He discussed some of the problems which are confronting organized scientific medicine in its efforts to safeguard and improve the public health. His address was both interesting and encouraging and was received with much enthusiasm.

Dr. M. P. Overholser, Harrisonville, on behalf of the Cass County Medical Society, thanked the visiting physicians for their part in making this an outstanding meeting.

Those present were Drs. T. W. Adair and B. B. Tout, Archie; William Beckman, Strasburg; G. W. Griffith, Garden City; M. P. Overholser and J. S. Triplett, Harrisonville; E. Lee Miller and H. S. Crawford, Kansas City; C. W. Luter and A. G. Wooldridge, Butler; R. H. Smith, Rich Hill; E. R. Cooper, O. B. Hall and L. J. Schofield, Warrensburg, and W. G. Thompson, Holden.

J. S. TRIPLETT, M.D., Secretary.

COOPER COUNTY MEDICAL SOCIETY

The Cooper County Medical Society met February 20 at St. Joseph's Hospital, Boonville, with the following members present: Drs. R. L. Evans, W. E. Stone, T. C. Beckett, A. Van Ravenswaay, C. H. Van Ravenswaay and J. C. Tincher, Boonville; G. L. Chamberlain, New Franklin, and J. O. Boley, Pilot Grove.

Medical and surgical motion pictures which were furnished by Davis and Geck and Eli Lilly and Company were shown. The pictures were interesting and instructive.

The following officers were elected for 1936: President, Dr. W. H. Zeigler, Boonville; vice president, Dr. T. C. Beckett, Boonville; secretary, Dr. J. C. Tincher, Boonville; delegate, Dr. W. E. Stone, Boonville, and alternate, Dr. C. H. Van Ravenswaay, Boonville.

J. C. TINCHER, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met March 3.

A card of appreciation from Dr. V. E. Kenney and Bobby for flowers was read.

Dr. O. T. Blanke, Joplin, presented Mr. Haywood Scott, attorney and local counsel for the Medical Protective Company. He discussed in detail malpractice suits and their prevention. He stated that there had been more cases in appellate courts during the last ten years than had appeared in all courts in all previous years. He stated that due to so many cases appearing in Oklahoma the Medical Protective Company had withdrawn from that state. He said the greatest protection the doctor has against malpractice suits and judgments is the keeping of ample and careful records. He felt the doctors should cooperate with one another and cooperate with the hospitals in keeping their records in detail. Doctors should secure written signed permission for operations and autopsies. He felt the doctors should be more careful in remarks or criticism of another's work, stating that a careless remark might result in malpractice suits. Physicians should attend or personally supervise all treatments given by assistants or nurses, stating that they alone were re-

sponsible to the patient for any action that might be taken.

The meeting was well attended by the medical profession, nurses and physicians' assistants.

Meeting of March 10

Dr. James B. Costen, St. Louis, spoke on "Neuralgias and Ear Pain Which are Concerned in Destruction of the Mandibular Joint."

Meeting of March 24

Dr. O. T. Blanke, Joplin, presented a report of a case of erythema nodosum following influenza.

Dr. S. A. Grantham, Jr., Joplin, presented a case of pneumonia with marked improvement following the use of pneumococcus antigen.

Dr. R. M. James, Joplin, discussed a case of pneumonia during the convalescence of which the patient developed large fecal concretions which interfered with his bowel function. There was complete recovery after removal of the concretions.

Dr. W. M. Kinney, Joplin, presented a paper on "Coronary Disease." It was discussed by Drs. E. J. McIntire, Carthage; R. L. Neff and S. A. Grantham, Jr., Joplin.

J. W. HARDY, M.D., Secretary.

PETTIS COUNTY MEDICAL SOCIETY

The Pettis County Medical Society met March 2 at 6:30 o'clock at the Bothwell Memorial Hospital. An excellent dinner was served by the hospital attendants.

The following members and guests were present: Drs. W. A. Beckemeyer, J. W. Boger, Cord Bohling, A. J. Campbell, J. B. Carlisle, J. G. Love, F. R. Morley, A. E. Monroe, C. A. McNeil, C. D. Osborne, C. G. Stauffacher, C. B. Trader, A. L. Walter, M. P. Shy, A. L. Pollard, W. T. Bishop, E. H. Schaefer, D. P. Dyer, E. C. Snively and W. M. Wheeler, Sedalia; H. A. Hite, Green Ridge, and J. L. Lattimore, Topeka, Kansas.

Dr. H. A. Hite, Green Ridge, president, introduced the speaker of the evening, Dr. J. L. Lattimore, Topeka, Kansas. Dr. Lattimore presented a paper on "Bacilluria." The different phases of this disease were explained and demonstrated.

After the discussion by the members a rising vote of thanks was extended to Dr. Lattimore for his excellent presentation.

EDWARD H. SCHAEFER, M.D., Secretary.

PHELPS-CRAWFORD COUNTY MEDICAL SOCIETY

The Phelps-Crawford County Medical Society met at the Rolla Hospital at 7:30 o'clock March 19. The meeting was called to order by the president, Dr. A. A. Drake, Rolla.

The death of a member and former secretary, Dr. W. S. Smith, Rolla, which occurred at the Rolla Hospital on the afternoon of March 7 was reported. Dr. W. H. Breuer, St. James, was named a committee of one to draft a proper obituary and resolution and furnish a copy to the Society for its records and a copy to the family.

A motion was adopted naming Drs. A. S. McFarland, Rolla, and R. E. Breuer, Newburg, as a committee to visit the various physicians of Phelps, Crawford and Dent counties and acquaint them with the intent and motive of the proposition of forming the three named counties into a tri-county society.

The Society adjourned to the clinic rooms of the hospital for presentation of the scientific program which

consisted of a most excellent paper by Dr. Irl B. Krause, Jefferson City, on "Gastric Intestinal Disturbances in Children" followed by a demonstration of clinic cases. Dr. Krause was congratulated on the excellence of his essay and lucidity of presentation.

Dinner was served by the management of the Rolla Hospital to the visitors, members and ladies of the 26th District Auxiliary. Those present were: Dr. and Mrs. A. J. Crider, and Dr. and Mrs. W. T. Decker-son, Dixon; Dr. and Mrs. W. H. Breuer, St. James; Dr. and Mrs. R. E. Breuer, Newburg; Dr. and Mrs. James McCarty, Salem; Drs. W. R. Ferrell, Belle; Cyrus Mallette, Crocker; E. A. Oliver, Richland; Leslie Randall, Licking; Irl B. Krause, Jefferson City; E. L. Hume, Bourbon; G. W. Horrom, J. E. Smith, E. E. Feind, C. E. Rice, A. S. McFarland and A. A. Drake, Rolla.

R. E. BREUER, M.D., Secretary.

RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met February 11 in the Public Library Building, Moberly, at 8:30 p. m. The meeting was called to order by the president, Dr. M. C. McMurry, Moberly.

Dr. J. A. Barger, Moberly, and Dr. H. C. Payne, Paris, were unanimously elected to membership in the Society.

The scientific program consisted of a talk on "Scarlet Fever" by Dr. E. K. Musson, Jefferson City, State Epidemiologist. This was followed by a general discussion by the members.

Those present were Drs. E. K. Musson and W. F. Lunsford, Jefferson City; J. F. Flynt and M. C. McMurry, Paris; F. L. Harms and G. W. Hawkins, Salisbury; G. G. Bragg and R. G. Epperly, Huntsville; J. P. Allen, Cairo; L. O. Nickell, John Maddox, P. C. Davis, T. S. Fleming, F. L. McCormick, C. C. Smith and M. E. Kaiser, Moberly.

Meeting of March 10

The Randolph-Monroe County Medical Society met March 10 at Moberly.

Dr. D. A. Robnett and Dr. M. Pinson Neal, Columbia, were guest speakers.

Dr. Robnett presented a talk on "Cancer" and Dr. Neal spoke on "Pneumonia."

Dr. Robnett also gave an outline of the work for the coming year at the Tumor Clinic of the Missouri State Medical Association at the State Hospital at Fulton.

Following the meeting a luncheon was served at Miller's Cafe.

Those present were Drs. D. A. Robnett and M. Pinson Neal, Columbia; John Maddox, L. O. Nickell, O. K. Megee, C. C. Smith, F. L. McCormick, T. S. Fleming, L. E. Huber, P. C. Davis and M. E. Kaiser, Moberly.

M. E. KAISER, M.D., Secretary.

H. Earle Conwell and R. H. Alldredge, Fairfield, Ala. (Journal A. M. A., April 11, 1936), point out that in a total number of about 9,000 fractures and dislocations treated by the orthopedic service of the Employees Hospital, there were six cases of complete dislocation of the knee joint. It is their opinion that dislocations of the knee should be treated conservatively; that is, by closed reduction and prolonged immobilization. They also believe that development of the muscles, especially the quadriceps, is of supreme importance, since they have a great deal to do with stabilizing the knee.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

14th Annual Meeting, Kansas City,
May 11-15, 1936

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

13th Annual Meeting, Cape Girardeau, 1937

President, Mrs. Walter C. G. Kirchner, St. Louis.

PROGRAM

Headquarters: Hotel Baltimore, Kansas City
Sunday, May 10

4:00-7:00 Tea for National Board, honoring Mrs. R. N. Herbert. Given by Board of Jackson County Woman's Auxiliary, assisted by officers of Woman's Auxiliaries to Wyandotte and Clay Counties. Home of Mrs. A. W. McAlester.

Monday, May 11

10:00-12:00 National Board meeting, Francis I Room, Hotel Baltimore.
12:30-2:00 National Board luncheon at Woman's City Club. Mrs. Geo. Hoxie and Mrs. A. B. McGlothlan, hostesses.
2:00-3:30 Board meeting continued.
3:30-5:30 Drive and tea (complimentary).
7:00 p. m. Dinner—honoring Founders, Officers and Presidents of Auxiliaries to Missouri and Kansas, Kansas City Country Club, \$1.50.

Tuesday, May 12

8:00 a. m. Southern breakfast, Hotel Baltimore, \$1.
9:00-12:00 General Session of Woman's Auxiliary to A. M. A., Francis I Room, Hotel Baltimore.
12:30-2:00 Luncheon, honoring Past Presidents of National Auxiliary, Renaissance Room, Hotel Baltimore, \$1.25.
2:30-3:30 Conference groups, Hotel Baltimore, Mezzanine floor.
3:30-5:30 Drive and tea (complimentary).
8:00 p. m. Open meeting at auditorium.

Wednesday, May 13

9:00-12:00 General session, Francis I Room, Hotel Baltimore. Mr. Perry Bromberg, speaker.
3:30-5:30 Drive and tea (complimentary).
8:00-10:00 Gallery walk at William Rockhill Nelson Gallery of Art.
8:00-9:00 Lecture, "Silver."

Thursday, May 14

10:00 a. m. Post-convention board meeting.
12:30-3:00 Luncheon, Woman's City Club, \$1. Mr. Tom Collins, speaker.
7:00 p. m. "Bring Your Husband" dinner, Pompeian Room, Hotel Baltimore, \$1.75 or \$2.
9:00 p. m. President's ball and reception, Hotel Muehlebach.

Friday, May 15

A. M.—Golf—Chairman, Mrs. C. R. McCubbin.
Tours.
1:00 p. m. Luncheon at Country Club.

The Woman's Auxiliary to the Buchanan County Medical Society held its annual Public Relations' Day

program in conjunction with the St. Joseph Clinical Society, March 23, at the Hotel Robidoux, St. Joseph. Dr. W. W. Bauer, Chicago, Director of Health and Public Education of the American Medical Association, spoke on "Popular Beliefs That Are Not So." The meeting was open to the public but special invitations were sent to the following organizations: Red Cross, Public Health Nurses, Parent-Teacher Association, League of Women Voters, Federation of Women's Clubs, members of the Dental Auxiliary and all teachers and students. Mrs. A. B. McGlothlan, St. Joseph, chairman of the Public Relations Committee, arranged for Dr. Bauer to address the students at Christian Brothers High School on Tuesday morning. Mrs. C. A. Good, St. Joseph, had charge of the luncheon at the Oakford Tea Room in honor of the wives of the visiting doctors.

The Buchanan County Auxiliary has suffered the loss of two members, Mrs. B. E. Miles who died March 25, and Mrs. C. O. Dewey who died April 3.

The Jackson County Auxiliary has lost a valued member, Mrs. C. C. Dennie. Mrs. Dennie had been active in the Auxiliary and the opening tea of the National Auxiliary's convention was to have been held at her home. She was a past-president of the Jackson County Auxiliary.

MISCELLANY

MATERNAL AND CHILD HEALTH WORK UNDER THE SOCIAL SECURITY ACT

A program for maternal and child health work in Missouri under the Social Security Act was formed at a meeting of the Advisory Committee to the Division of Child Hygiene of the State Board of Health in Jefferson City, March 3. The plan has now been approved by the Children's Bureau of the Federal Department of Labor.

The plan calls for two appointees to direct the work in the field and Dr. E. T. McGaugh, Health Commissioner, has appointed Dr. Oscar F. Bradford, Kansas City, pediatrician, and Dr. Paul F. Fletcher, St. Louis, obstetrician.

The Advisory Committee is composed of Dr. E. Lee Miller, Kansas City, President, Missouri State Medical Association; Dr. R. H. Miller, St. Louis, president, Missouri State Dental Association; Miss Grace Frauens, Kansas City, State Nurses Association; Dr. Dudley S. Conley, Columbia, Dean, University of Missouri School of Medicine; Father Alphonse M. Schwitalla, St. Louis, Dean, St. Louis University School of Medicine; Dr. W. McKim Marriott, St. Louis, Dean, Washington University School of Medicine; Dr. J. F. Bredeck, St. Louis, Missouri Public Health Association; Mr. J. W. Becker, St. Louis, Missouri Tuberculosis Association; Dr. Frank C. Neff, Kansas City, American Academy of Pediatrics; Dr. Ralph R. Wilson, Kansas City, Chairman, Committee on Maternal Welfare, Missouri State Medical Association, and Mrs. Howard Cook, Jefferson City, Missouri Association for Social Welfare.

Following is the letter written by Dr. Herman S. Gove, Director, Division of Child Hygiene, Missouri State Board of Health, to the Children's Bureau outlining the plan which was adopted.

March 13, 1936

Dr. Albert McCown,
Director, Maternal and Child Health Division,
Children's Bureau,
U. S. Department of Labor,
Washington, D. C.
Dear Dr. McCown:

I have the honor to herewith transmit to the Children's Bureau an outline of the plan of the Division of Child Hygiene of the State Board of Health of Missouri as contemplated under Social Security Legislation.

1. Financial Participation by the State:

According to our interpretation of the Social Security legislation, the basis of matching funds is the total amount of money expended in the state by official agencies for maternal and child health service that is supervised by the State Health Department. Further, according to our information these funds must be official funds although private funds deposited with an official agency may be included.

In this summary of funds available for matching purposes we are not including any private funds so deposited.

Funds available for matching as set up in the accompanying budgets are as follows:

Division of Child Hygiene, State Board of Health..	\$24,360.00
Division of Child Hygiene, in City Health Departments	6,125.00
Division of Child Hygiene, County Health Departments	21,220.00
	<hr/> \$51,705.00

We have not included funds from either Kansas City, St. Joseph or St. Louis due to the fact that the State Board of Health has only nominal supervision in these cities. By Statute cities of 75,000 and over are allowed to conduct their own forms of health government without interference from the state. We do, however, intend to bring into the general state plan all of the cities in the state through the medium of the Assistant Director of Child Hygiene, the State Supervising Nurse and the State Consultant Nurse for Maternal and Infant Hygiene. This of course is in addition to other personnel now employed or to be employed by the State Health Department.

There is throughout the state an excellent spirit of cooperation between the cities and the State Health Department, and it is anticipated that a more intensive program may be developed in these cities through assistance given them by the state staff.

2. The State Health Agency:

In the State of Missouri funds made available by the Children's Bureau will be administered through the Division of Child Hygiene of the State Board of Health under the direction of Dr. H. S. Gove. In the administration of funds and the direction of activities, besides the State Commissioner of Health, Dr. W. F. Lunsford, Assistant State Health Commissioner, will have general supervision.

The following skeleton outline will serve to show the activities to be administered directly and indirectly by the Division of Child Hygiene of the State Board of Health.

A. Activities to be administered directly by the Division of Child Hygiene.

1. Postgraduate courses in obstetrics and pediatrics for physicians.
2. Dental health education.
3. State supervision of local public health nurses in cities under 75,000 and rural areas.
4. Distribution of maternal and child hygiene literature.
5. Distribution of toxoid.

B. Activities to be administered under the supervision of the Division of Child Hygiene by local subdivisions.

1. St. Louis City demonstration.
2. Subsidizing the costs of certain county public health nurses.

Discussion of items under heading "B" will be taken up later.

3. Methods of Administration:

The State Commissioner of Health has assigned the maternal and child welfare phase of the Social Security program to the Assistant State Health Commissioner, Dr. W. F. Lunsford, who will have general supervision of the entire program. He will act as advisor and consultant to the director of the Division of Child Hygiene.

General supervision of this program will be by Dr. H. S. Gove, Director of the Division of Child Hygiene. Responsible immediately to the assistant director of the Division of Child Hygiene will be: 1. Chief nurse; 2. pediatrician; 3. obstetrician; 4. state dental hygienist.

The Assistant Director of Child Hygiene will be responsible directly to the State Director of the Division of Child Hygiene. It will be his function directly to supervise all field activities. He shall receive reports from and advise with the chief nurse relative to the nursing program conducted in the field. He shall further be responsible for conducting the examinations at "Well Baby Conferences" as a matter of demonstration wherever there shall be need of such services in the state.

The chief nurse shall be responsible to the Assistant Director of Child Hygiene concerning matters of appointment and location of personnel and the nursing program in general.

The state dental hygienist will be responsible for a state-wide dental program as well as the activities of his assistants. He will work in cooperation but not under the direction of the child hygienist.

The pediatrician shall be responsible for conducting educational lectures on pediatrics to physicians throughout the state. He shall so divide the state that within one year he shall have conducted a series of from ten to twelve lectures and diagnostic or advisory clinics accessible to each physician in the state. He shall work in full cooperation with the State Medical Association, its associated county and district societies and its allied branches and committees. He shall, however, be directly responsible only to the assistant director of the Division of Child Hygiene. His lectures shall be of at least one hour duration and shall deal with diagnosis, treatment and prevention of diseases peculiar to infancy and childhood. These lectures shall include also at least the rudiments of proper infant feeding. With these lectures he shall hold one clinic following each lecture which shall be of at least one hour duration. This clinic will be diagnostic in character and open only to patients brought in by physicians. These lectures and clinics shall be open only to reputable physicians and shall be a free service.

The obstetrician shall be responsible for conducting educational lectures on obstetrics to physicians throughout the state. He shall also so divide the state that within one year he shall have conducted a series of from ten to twelve lectures and diagnostic clinics accessible to each physician in the state. He shall work in close cooperation with the State Medical Association, its associated county and district societies and its allied branches and committees. He shall, however, be responsible only to the assistant director of the Division of Child Hygiene.

His lectures shall be of at least one hour duration and shall deal with diagnosis, treatment and prevention of conditions and diseases peculiar to pregnancy and child birth. With these lectures he shall hold a clinic following the lectures which shall be of at least one hour duration. This clinic will be open only to patients brought in by physicians. These lectures and clinics shall be open only to reputable physicians and shall be a free service.

It is expected that the pediatrician and obstetrician shall so connect their work that it will constitute one compact service. The pediatrician and obstetrician, furthermore, shall so work in cooperation with other staff members that the greatest good can be secured from the program.

The method of handling the travel expenses of the state staff members will be to give them a lump sum out of which they must maintain their own car and pay their own traveling expenses.

It will be noted that there is an item to subsidize eight local county nurses. It may be stated here that each of these nurses will be under the direct supervision of one of the state staff nurses and will be advised by the special consulting nurse.

It will be noticed that we have not included definitely the names of the counties in which this subsidy will be placed, neither have we included the actual amount of subsidy. This is because at this time it is impossible to state definitely the exact amount of subsidy or the actual county which will be subsidized. It will be necessary for us first to determine where the greatest need is shown and where the best results may be obtained from this subsidy. The subsidy will be paid to each nurse in a subsidized county directly from the Division of Child Hygiene as a matter of salary.

In carrying out a program of this type there will necessarily have to be an increase in the amount of available supplies such as literature, forms, etc. We have consequently added \$150 per month to the present budget in order to furnish these necessary supplies and \$50 per month for communication.

For the purpose of stimulating immunization of infants and children there has been included in this budget a fund for toxoid for the prevention of diphtheria. This is to be used especially in the immunization of children who are financially unable to pay for such service. It is estimated that \$300 a month will be spent for this purpose and such an amount has been included in the budget.

It is estimated that at this particular time approximately 15 per cent of the population under school age in the State of Missouri are on relief. At the present time the State Health Department has no means with which to assist with the expense of immunization for these poverty stricken children and

it is definitely the intention of this division to attempt to furnish diphtheria toxoid to these underprivileged children.

It of course should be understood that plans formulated at present cannot be as definite as they will be at a later date. It is realized that any maternal or child welfare program to be of the greatest value should be so coordinated in its various phases that the work will be carried on smoothly and with a spirit of cooperation that will insure the utmost good to the greatest number.

4. Reports to Secretary of Labor:

It is contemplated that forms for reports may be furnished by the Children's Bureau to the Division of Child Hygiene. It is expected that such forms will be adopted for general use by the Division of Child Hygiene and that regular monthly, quarterly, semi-annual and annual reports will be furnished to the Secretary of Labor through the Children's Bureau. It is further our intention to comply with such provisions as from time to time may be necessary to assure correctness and verifications of reports.

5. Extension and Improvement of Local, Maternal and Child Welfare Services:

As one method of expansion and improvement of local and maternal and child health service, it is planned to subsidize certain of the county nursing services now operated in the state. It is felt that it is better to spend some time on these particular counties in order to strengthen them.

It will be noted that no funds have been requested out of Fund B, but it is expected as soon as the initial program is under way to add nursing services in selected areas where there is apparent need. At the present time, however, in a number of the nursing services in the state it is almost impossible for county courts to obtain sufficient funds to carry on public health nursing. Unfortunately in these counties we find a great deal of poverty and extremely poor health facilities of any kind. It is felt that by subsidizing these counties at the rate of \$25 to \$75 per month that it will make it possible for the nurse to carry on with her work. It is estimated that at least 50 per cent of the time of nurses so subsidized will be expended in maternal and infant welfare work.

It may be stated that this will definitely improve local maternal and child health services as well as being an extension of such services since there are counties where salary reductions have been so severe as to make it impossible for nurses to carry on without outside funds. It is planned in the next budget to further develop such services.

6. Cooperation with Medical, Nursing and Welfare Groups:

In order to assure the proper cooperation with medical, nursing and welfare groups an Advisory Council has been appointed and is composed of one member from the following organizations.

1. University of Missouri Medical School
2. University of Washington Medical School
3. University of St. Louis Medical School
4. State Medical Association
5. State Public Health Association
6. State Dental Association
7. State Nurses Association
8. American Academy of Pediatrics
9. Committee of Obstetrics of the State Medical Association
10. Missouri Association of Social Welfare

It is to be anticipated that this advisory group will hold meetings at least four times yearly at which time representatives from such groups as State Parent Teacher's Associations, State Child Health Council, Crippled Children's Association, etc., will be invited to present their requests and reasons for assistance from this program.

To be successful the plan of operation in Missouri will have to gain the close cooperation of medical, nursing and welfare groups.

All of the members of this committee have accepted, except the representative from the Social Welfare Association, who is yet to be chosen.

The first meeting is expected to be called not later than the first of March. It will be noted that there has been included an item of \$400 yearly to defray a portion of the expenses of this committee in attendance at the quarterly meetings.

7. Demonstration Services:

Reference is herewith made to the above-mentioned St. Louis demonstration. This is requested by the City Health Administration of St. Louis.

There is an area in the City of St. Louis having quite a large population wherein the infant death rate is extremely high. This is an area where there is a great deal of poverty. For some time the State Health Department has been interested in this area in St. Louis, and this is intended to be a demonstration dealing solely with maternal and child health problems which is expected to give a very definite idea of the reasons for the death rate of this area, and is further expected to very materially lower the rate.

It is of especial interest to the State Health Department because it will serve as a demonstration to prove to other cities having similar conditions what may be done to improve their own health conditions.

These nurses will be directly supervised by the Assistant State Director of Child Hygiene, the State Chief Nurse, and will be advised and counseled by the special consulting nurse.

The following is a brief summary of the St. Louis project as outlined by Dr. Bredeck.

"The present staff of nurses in the downtown district consists of three nurses doing generalized nursing, and the Mill Creek District has four nurses doing generalized nursing. It is proposed to put two nurses doing nothing but infant welfare work in the Mill Creek District and one nurse in the downtown district.

"The infant death rates in these two districts are the highest in the city over the last three years. In the downtown district in 1935 we had 256 live births with 15 deaths, or a rate per thousand live births of 58.6. In this particular district we had 25 white babies under our Health Center supervision and 109 Negroes. Of the 15 deaths that occurred in this district, five were among our Health Center babies and ten under the care of private physicians and other institutions. The death rate, therefore, among those not attending our Health Centers was double those who had attended.

"In the Mill Creek District there were 535 live births with 44 deaths, or a rate of 82.2 per thousand live births. Of this number we had 148 white and 195 colored attending our Health Centers. Among those attending our Health Centers six died and the other 38 deaths were among private physicians and other institutions. From these figures you see that there is evidently a marked difference between our mortality in these districts and those attended by private physicians and other institutions.

"There is need for a decided improvement in the educational work among the mothers as further evidenced by the fact that the highest single cause of death is premature births. A great deal of educational work can be accomplished by these nurses and we expect to follow every birth and those of the previous year. In addition, we expect to push an intensive program for diphtheria immunization and for pregnant mothers to secure medical advice earlier.

"We feel that much can be accomplished in these two areas and we should gather some very valuable information as the result of survey work and accurate records along these lines.

"We do not feel that the case load would be too heavy and they should be able to carry out the minimum number of visits to be made as recommended by the American Public Health Association; namely, six visits per case. In many instances it will be necessary to make more than the required six visits.

"As a result of other survey work done, we feel quite positive that the results will more than justify the expenditure of money on this project. With the present staff that we have it is impossible for the nurses to cover the field and have not been able to register more than about 36 per cent effectiveness in their work as a result of lack of personnel."

Conclusion:

The need for maternal and child welfare work in Missouri is very great. There is in this state a population of approximately 3,600,000. Approximately half of this population is distributed throughout rural areas. The City of St. Louis with its 900,000 and Kansas City with its 500,000 have adequate facilities for maternal and child welfare. The other cities of over 10,000 in the state have good facilities to a varying degree. There is, however, practically no service rendered to rural areas in this state.

There are in the state 114 counties and it is easy to see that these counties must be very small with low assessed valuation and small tax incomes. The result is that most county courts find themselves with insufficient funds to carry on even the established and statutory provisions of county government. There are areas especially in the southern part of the state where the population is very sparse, economic conditions very bad and the future far from bright. With this program a concerted effort is to be made to reach both the physicians in these areas and needy individuals.

The average age of physicians in rural areas in the State of Missouri is 57 plus years, with very few physicians under 35. The economic conditions of the physician bears a direct ratio to the economic conditions of the community in which he practices. These physicians find it impossible from a financial or time standpoint to leave their practices for a period sufficient to do any valuable postgraduate work. It is consequently the desire of this department to give to these physicians the advantage of postgraduate education in obstetrics and pediatrics. We feel that reduction in both maternal mortality and infant mortality will come only through a well educated and well qualified medical profession. We feel that there are few physicians who will not gladly attend a series of lectures and clinics on pediatrics and obstetrics.

It has been the writer's privilege to see a series of lectures of this nature delivered in a strictly rural county. In that instance, however, some thirty-five physicians paid \$35 each for

this series of lectures. The result of this course of postgraduate training was absolutely astonishing. Even the older doctors acquired an entirely different and much more scientific attitude toward the care of their patients.

It may further be stated that this program is built to dovetail with a program to be established through funds obtained from the United States Public Health Service.

The program planned is one which would be utterly impossible for many years for this State Health Department to undertake were it not for the possibility of aid from outside sources such as the Children's Bureau and the United States Public Health Service.

As before mentioned no allotment has been requested from Fund B. We plan to develop our program very slowly and to use additional money from Fund B only as the program and demand may justify expansion.

To assist in the building and carrying out of this program there has been selected an Advisory Committee composed of the following members.

1. President of the State Medical Association
2. A representative from each of the three medical schools in the State, namely: Washington University, St. Louis University, and Missouri University
3. State Dental Association
4. State Nurses' Association
5. State Public Health Association
6. A member from the American Academy of Pediatrics
7. Committee of Obstetrics of the State Medical Association
8. A representative from the Missouri Association of Social Welfare

A list of these members has been prepared and is included. I believe that it will be found that the reputation of these members is very excellent and their standing in professional circles very high.

In the past, efforts along the lines of maternal and child welfare have been sporadic, scattered and ineffective. We are attempting through this program to build a unified, concentrated service, which will be effective in every section of the state.

Respectfully submitted,
(Signed) HERMAN S. GOVE, M.D., Director,
Division of Child Hygiene.

HSG:EK

DR. THOMAS PARRAN, JR., NOMINATED FOR SURGEON GENERAL, UNITED STATES PUBLIC HEALTH SERVICE

Dr. Thomas Parran, Jr., State Health Commissioner of New York, and at one time representative of the United States Public Health Service in Missouri, has been nominated by President Roosevelt as Surgeon General of the United States Public Health Service to succeed Dr. Hugh S. Cumming, resigned.

Of Dr. Parran and his nomination the April issue of the *American Journal of Public Health* carried the following:

Thomas Parran, Jr., M.D., has been nominated by President Roosevelt to succeed Hugh S. Cumming, M.D., as Surgeon General of the U. S. Public Health Service. He has been State Health Commissioner of New York since 1930.

Dr. Parran received his medical degree in 1915 from the Medical School of Georgetown University in Washington, D. C.

Following his graduation, Dr. Parran served as resident physician at Sibley Memorial Hospital in Washington and later accepted a temporary appointment in the U. S. Public Health Service in connection with field investigations of rural sanitation in Greenville County, S. C., Obion County, Tenn., and Clay County, Mo. He entered the commissioned corps of the Service in March, 1917, since which time he has had a variety of assignments.

In 1926, he represented the United States at an interchange of public health officers held in Denmark. In 1925 he visited Europe for the purpose of studying methods of control of the venereal diseases. During the latter part of 1926, he was assigned as Assistant Surgeon General in Charge of the Division of Venereal Diseases of the Public Health Service. Early in 1930, Governor Roosevelt of the State of New York requested the loan of Dr. Parran to act as State Health Commissioner for New York. He has served in that capacity since that time.

For ten years Dr. Parran has been chairman of a cooperative clinical group organized for the purpose of studying methods of treatment and control of syphilis. This group consists of the clinicians in charge of five large venereal disease clinics in some of the leading hospitals of the United States. He has been actively identified in an advisory capacity with a number

of the volunteer health organizations such as the American Society for the Control of Cancer and the American Social Hygiene Association.

In July, 1935, Dr. Parran was appointed a member of the Scientific Advisory Board of the National Research Council. He was also appointed a member of the Advisory Council of the Henry Phipps Institute of Philadelphia in October, 1935, succeeding Dr. William H. Welch, deceased, of Baltimore. He was chairman of the American delegation attending the International Congress on Dermatology and Syphilis which was held in Budapest in the fall of 1935.

He is a member of the Albany County Medical Society, the New York State Medical Association, the New York Academy of Medicine and the American Medical Association. He is the author of a number of papers dealing with public health and scientific subjects.

Dr. Parran, if appointed, will be the sixth Surgeon General of the U. S. Public Health Service. He will be the first Surgeon General of the Public Health Service who has served as state health officer prior to becoming Surgeon General. Previous to assuming his duties as State Commissioner of Health in New York, his experience in state health work was extensive.

Dr. Parran was treasurer of the American Public Health Association from 1931 to 1933, and chairman of the Executive Board from 1933 until the annual meeting in Milwaukee in October, 1935, when he became president-elect. He will assume the office of president at the sixty-fifth annual meeting in New Orleans in October of this year. He has been a member of the Association since 1919 and a fellow since 1923.

BOOK REVIEWS

THE 1934 YEAR BOOK OF GENERAL MEDICINE. Edited by George F. Dick, M.D., Lawrason Brown, M.D., George R. Minot, M.D., S.D., F.R.C.P. (Hon.) Edin., Wm. B. Castle, M.D., A.M., Wm. D. Stroud, M.D., and George B. Eusterman, M.D. Chicago: The Year Book Publishers, Inc. 1934.

Leonard Hill upsets many popular conceptions of the "daily hygiene" by stressing the real discomfort we experience from weather comes about through an interference with the normal loss of heat and moisture from the surface of the body. The increasing number of articles on cancer of the lung indicates not only its growing recognition but actual increase making it one of the things to be routinely considered in chronic chest troubles. Attention is called to the roentgen ray evidence of atelectasis, often associated with bronchiectasis, including, of course, the basal triangular shadows. The rheumatic lung is well described emphasizing the widespread pathology in this infection. Cole summarizes the known facts about pneumonia; that it is a communicable disease usually secondary to an upper respiratory infection; that an etiological diagnosis should be made and serum used in type I. Attention is called to the fact that what is usually thought of as heart failure in pneumonia is in reality peripheral circulatory failure and should be accordingly treated. Holmes refers to the many chronic lung diseases that may be mistaken for tuberculosis in a roentgen ray examination.

In the blood disease group considered the editor notes "attention is shifting in blood work from the descriptive to the physiologic approach and animal studies are being carried over into man."

In the section devoted to heart disease there is again followed the practice of presenting the papers under etiological, anatomical, physiological and treatment headings. Several papers are given on the use of thyroid ablation in congestive heart failure and angina pectoris. Diseases of the peripheral circulation are extensively considered.

The Year Book in the field of medicine has long been popular. From time to time improvements appear such as the method of presenting diseases of the heart and

editors' notes scattered through their reviews of papers. In this year these notes have been expanded so that the why and wherefore of the particular selection of articles is stated.

It seems to this reviewer that there is need for a more general recognition of the implications of chronic bronchitis, pulmonary fibrosis, atelectasis and emphysema, long well known at the autopsy table but neglected somewhat in the physical and roentgen ray examinations of the chest. They should be considered not as separate but as all going hand in hand. L. S. L.

THE HUMAN FOOT. Its Evolution, Physiology and Functional Disorders. By Dudley J. Morton, Associate Professor of Anatomy College of Physicians and Surgeons, Columbia University. Morningside Heights: New York: Columbia University Press. 1935. Price \$3.00.

A scholarly and well-written treatise on certain phases of development and function of the human foot. Whether or not one agrees with the conjectural premises of the first section, he will enjoy the painstaking accuracy in the observations made by the author on the homology existing between the foot of man and that of lower orders of animal life.

The second portion of this interesting book deals at length with the mechanics of the foot in relation to superimposed body weight. This is obviously important to any one interested in the prevention and correction of static disabilities in the human apparatus of locomotion.

The third part of Dr. Morton's treatise has to do with the functional disorders of the foot, particularly their relationship to an anatomical variation observed by the author, shortness of the first metatarsal bone. The author quite frankly states that his book is not intended to be a text upon the subject of foot welfare but is a preliminary study of the development, the anatomy and the functional disturbances to be found in this portion of the body. It will not, therefore, be particularly popular among clinicians, but any one interested in a detailed analysis of this important part of the body will find his time well spent in perusing Professor Morton's clearly illustrated volume. T. P. B.

FUNDAMENTALS OF BIOCHEMISTRY IN RELATION TO HUMAN PHYSIOLOGY. By T. R. Parsons, B.Sc. (Lond.), M.A. (Cantab.) Sidney Sussex College, Cambridge. Fifth edition. Baltimore: William Wood & Company. Cambridge, England: W. Heffer & Sons, Ltd. 1935. Price \$3.00.

The first edition of this book was published in 1923; the fifth in 1935. There are few books of this type which have enjoyed such popularity. The reviewer has in mind another excellent book on the same subject written by a well known authority which has been through but two editions in about the same time.

Book reviews, I suppose, are written to whet the appetite of those who happen to read the review and to arouse in him or her the desire to devour the original; the "movies" call such reviews "teasers," I believe.

Parsons really makes biochemistry interesting. You don't have to know the intricacies of benzol rings to be able to understand or like this book. Any one who has the desire to know what some of our more recently graduated colleagues are talking about when they speak of the deamination function of the liver or the carbohydrate molecule of proteins is advised to read Parsons' "Fundamentals of Biochemistry." The reviewer promises it will be a pleasure, not a task. F. C. N.

DISEASES OF WOMEN. By Harry Sturgeon Crossen, M.D., F.A.C.S., Professor Emeritus of Clinical Gynecology, Washington University School of Medicine, Gynecologist to the Barnes Hospital, St. Louis Maternity Hospital, etc., and Robert James Crossen, M.D., Instructor in Clinical Gynecology and Obstetrics, Washington University School of Medicine, Assistant Gynecologist and Obstetrician to the Barnes Hospital and the St. Louis Maternity Hospital, etc. Eighth Edition, entirely Revised and Reset. With one thousand fifty-eight Engravings including one Color Plate. St. Louis: The C. V. Mosby Company. 1935. Price \$10.00.

"The great development of knowledge concerning the endocrine system and its relation to the genital tract has released a flood of light on gynecological problems." This quotation from the preface to the eighth edition "Diseases of Women," by Crossen and Crossen, explains the necessity for a new edition of their very comprehensive work.

The principal changes in connection with this new book are in the chapters dealing with the physiology of the genital tract and in that portion devoted to gynecological pathology. One wonders however, with the rapid shifting of thought regarding the endocrines, how the modern textbook can keep up on this subject. The photomicrographs and section on pathology are better than the average and this is one of the best sections of the book.

The subject matter is given in great detail. If any criticism could be made at all it would be that part of the detail is too elementary. However, since this work is recommended to students and practitioners alike, this completeness makes it valuable both as a textbook and reference work. F. B. K.

ESSENTIALS OF PSYCHOPATHOLOGY. By George W. Henry, Associate Professor of Psychiatry, Cornell University Medical School, New York; Attending Psychiatrist, The New York Hospital, New York City. Baltimore: William Wood & Company. 1935. Price \$4.00.

The work is much in need of condensation. It scarcely seems necessary where space is so important a consideration to devote chapters to psychiatric case records and methods of examining or to give in detail large sections of individual case records. Again the chapter on the function of the brain is inadequate. It is difficult to understand why writers on the subject consistently neglect to take into account the deductions to be drawn from Dandy's massive excisions. It seems that the author might with profit have included discussions on the probable or possible interrelations of neurosis, psychosis, psychopathic personality and personality defects. The entire work seems written too much with the idea of the psychoses in mind, to the neglect of the neuroses and minor manifestations. The factor of fatigue might with profit have been emphasized more than it was. Nevertheless the book contains much interesting material and is well written. It is well worth reading and owning. L. B. A.

AIDS TO MEDICINE. By James L. Livingstone, Physician to King's College Hospital; Assistant Physician to the Hospital for Consumption and Diseases of the Chest, Brompton. Fifth edition. Baltimore: William Wood & Company. 1935. Price \$1.50.

This little book has maintained its position through a series of five editions, the first one published in 1909, the fifth, the present one, in 1935. Much of it has of

course been rewritten with changing viewpoints in medicine. In the present volume the chapters on blood diseases, renal diseases, the ductless glands and the nervous system have been completely recast.

The text is remarkable for its clearness and completeness of statement, in spite of its necessary brevity. While it does not pretend to be a textbook, it gives an efficient, correct and complete resumé of each subject dealt with. It should be excellent for a quick review, not only for students but quite as much for active practitioners. W. B.

HEALTHFUL LIVING. By Harold S. Diehl, M.D., Professor of Preventive Medicine and Public Health, and Dean of the Medical Sciences of the University of Minnesota. With an introduction by Morris Fishbein, M.D., Editor, Journal of the American Medical Association. New York: McGraw-Hill Book Company, Inc., 1935.

Under the general editorship of Dr. Fishbein the McGraw-Hill Book Company presents Dr. Diehl's book as the first in a series of popular health discussions. It is an excellent book calculated to arouse the interest of the layman in scientific medicine. In a straightforward style the author presents the problems of health, the use of stimulants, indulgence in exercise, the choice of food, the value of weight control, etc. He goes on with a discussion of certain of the more important anatomical systems of the body and concludes the volume with sound suggestions as to the choice of a health adviser.

The chapter on the common cold proves particularly interesting. As is known, Dr. Diehl has made extensive investigations on this subject on students at the University of Minnesota. He points out the general lack of therapeutic effectiveness of a host of commonly advised remedies. More, he makes clear why the large variety of patent medicines offered in press and radio advertising afford a seeming cure. The medical profession should induce a large portion of the general public to consider critically the evidence presented by the author. Then there would be reason to believe that a large part of the enormous amount of money spent annually for patent medicines might be more rationally expended in the purchase of medical care. The author makes a strenuous effort to direct the sick individual back into the medical fold. He makes no extravagant promises as to the ability of the doctor but he does explain the oftentimes baffling and time consuming problem which must be faced in the cure of disease.

Your reviewer heartily endorses the statement of Dr. Fishbein that "the volume should have a wide audience and thus accomplish great good." B. Y. G.

AN INTRODUCTION TO MEDICAL ECONOMICS. An Outline prepared by the Bureau of Medical Economics of the American Medical Association. Revised in 1935.

Dr. R. G. Leland presents an exhaustive treatise on the subject of economics in general and medical economics in particular. Tracing the origin of economic theory he emphasizes the neglect long accorded medical economics. He recognizes certain inadequacies in modern medical practice but insists that these are economic not medical problems. An income of \$2000 per family is necessary to enable the purchase of more than minor medical care. In 1929 half the families of non-farmers and four fifths of the families of farmers had an income less than the minimum requisite for private medical care. When his study based upon incomes in the boom year of American prosperity is compared with an analysis of the tax returns for 1934 the utter

inability of a large portion of the American public to pay for medical service becomes apparent. In that year less than three persons in 200 had an income sufficient to require them to pay an income tax (on the net basis of \$2500 for married men and \$1000 for single men). Only seventeen of each 200 persons actually employable enjoyed an income large enough to qualify in the reporting class. In Missouri the percentages were somewhat lower than the average for the rest of the country.

Dr. Leland's report is admirable in every respect. There can be no criticism of the report itself. Yet it seems to be motivated by but one thought, i. e., what was good, what was must be continued. The upheaval in economic life and the appearance of the company doctor which the last sixty years have witnessed are of no importance in determining the course of organized medicine. In view of frequently expressed lay disapproval of modern medical economic trends the author leaves certain pertinent questions unanswered. Are we, as physicians, meeting the demands of the public with the highest type of scientific medicine? Are we driving potential patients into the hands of cultists because of any sin of omission or commission? In short, does the system of medical economic practice that has come down through the ages accord with the requirements and demands of a mechanistic and electrical age? Finally, do our returns from that practice suffice to assure us a decent standard of living and the opportunity of continued self-improvement? If change is to come might it be better if the profession drafted the legislation which will determine its future? Would it be wiser to fashion our own laws or to have a Bismarck or a Lloyd George do it for us?

Dr. Leland has not answered these questions in his brochure. Nevertheless he has done a masterly piece of work in assembling statistical evidence and urging the medical profession to perpetuate the traditions of a glorious past. He is to be congratulated on the skillful manner in which he has correlated his material. Certainly a careful analytical reading of this pamphlet will repay every physician. It may be hoped that in a future revision Dr. Leland will be enabled to recommend to the profession a plan (perhaps one now in use by a county society) to meet the economic problem of scientific medicine.

B. Y. G.

MODERN HOME MEDICAL ADVISER. Your Health and How to Preserve It. Edited by Morris Fishbein, M.D. With many linecut and halftone illustrations. New York: Doubleday, Doran & Company, Inc. 1935. Price \$9.50.

Dr. Fishbein has taken a hint from such books as Cecil's "Text Book on Medicine" in preparing a home medical adviser in which each chapter is written by an acknowledged authority.

The book is intended for the laity, just as the old-fashioned family doctor book was. It is unnecessary to tell the medical profession that the information is reliable and of a character to discourage self-medication and to increase reliance on the family physician. In fact, the only criticism that could be offered is that the authors lean backward in their reluctance to advise methods of treatment that could be carried out at home.

The subjects covered and the authors are:

The Family Medicine Chest, First Aid, and Hygiene of Women, Morris Fishbein; Sex Hygiene, Thurman B. Rice; Care of Mother Before and After Childbirth, J. P. Greenhill; Care and Feeding of the Child, Philip C. Jeans; Infant Hygiene, Frederick F. Tisdall; The Prevention and Treatment of Infectious Disease, The Respiratory Diseases, and Rheumatism, Arthritis, and

Gout, Morris Fishbein; Diseases of the Heart and Circulation, Newell C. Gilbert; Digestion and Digestive Diseases, Milton M. and Sidney A. Portis; The Kidney, Its Diseases and Disturbances, Philip S. Hench; The Blood and Its Diseases, Raphael Isaacs; Deficiency Diseases, Russell M. Wilder and Dwight L. Wilbur; Allergy and Hypersensitivity, Including Hay Fever, Asthma, Hives, Headache, Eczema, Stomach and Intestinal Disorders and Other Functional and Organic Diseases, William W. Duke.

Under the Internal Glandular System are:

The Glands, Walter Timme; Goiter: The Cause and Prevention, Oliver P. Kimball; Diabetes, Elliott P. Joslin; Blood Pressure, Wingate M. Johnson; Cancer, Francis Carter Wood; The Hazards of Industry, Carey P. McCord; The Skin, Arthur W. Stillians; Eye, Ear, Tongue, Nose and Throat, The Venereal Diseases and The Care of the Teeth, Morris Fishbein; Advice on the Diet, Solomon Strouse; Posture, Tait McKenzie; The Foot, Philip Lewin; Nervous and Mental Disorders, George K. Pratt, and Old Age, Morris Fishbein.

L. C.

SOME FACTS ABOUT NURSING. A Handbook for Speakers and Others. The Nursing Information Bureau of the American Nurses' Association cooperating with The National League of Nursing Education and The National Organization for Public Health Nursing. 50 West 50th St., New York. 1935.

In the form of a compact syllabus this handbook contains a large amount of useful information pertinent to the nursing field. It amply fulfills its purpose of serving as a ready reference for the physician interested in the nursing school of his hospital, for the business man director of a hospital with a school of nursing, for the young girl who contemplates nursing as a career, or for the intelligent mother who seeks to guide her daughter into the field of nursing.

It is surprising to learn that in the West North Central states (of which Missouri is one) over 80 per cent of the schools of nursing had either none or only one full-time instructor in 1935. "Of the 25,000 nurses coming into the profession this year by far the greater number will be ineligible (unprepared) for the openings now vacant." Despite an apparent surplus of nurses for private or general duty there is an increasing field of opportunity for the nurse qualified in contagious, public health or institutional work.

B. Y. G.

THE SPECIAL PROCEDURES IN DIAGNOSIS AND TREATMENT. An Outline for Their Understanding and Performance. By Don Carlos Hines, M.D., Clinical Instructor in Medicine, Stanford University. California: Stanford University Press. 1935. Price \$1.00.

This reviewer has always been prejudiced against outline efforts to clarify medical knowledge. It is agreeably surprising therefore to find an outline which actually is readable and can be covered in less than an hour.

In sixty-six pages the author outlines the technical care and treatment of medical patients as practised at Stanford Hospital. Regulation of the patient's activity, personal care, parenteral technic, blood transfusion, spinal and cisternal puncture, hydrotherapy, gas therapy, etc., are briefly considered.

Such an outline should be of considerable value to students and interns, and the reviewer himself has learned several new things.

B. S. P.

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UTERINE PROLAPSE

E. LEE DORSETT, M.D.

ST. LOUIS

It is with some trepidation that the subject of the treatment of uterine prolapse is brought forth again as there now exists such a diversity of opinions as to the best operative procedure to be used.

There is no question but that surgery is the best method to relieve most of these cases but the type of operation to be applied to the individual case is generally a matter of the personal opinion of the operator.

Bissell has stated, and this has been substantiated by Goff, that the support of the uterus depends upon the visceral portion of the endopelvic fascia which lies in the vicinity of the uterine vessels in the bases of the broad ligaments, sometimes called the cardinal ligaments of the uterus. There is no question but that the uterus does not descend without elongation of the supporting tissue of the parametrium. Fletcher Shaw has brought this out plainly when he points out that when we perform a total hysterectomy and pull up on the uterus that is to be removed there is no increased mobility even after the broad and round ligaments have been severed and the bladder desected away from the uterus but, as soon as the tissue immediately below the uterine arteries is severed, the uterus can be fairly easily drawn out of the pelvis for a much greater distance. This well illustrates that the uterus cannot go in the opposite direction (downward) unless this same tissue is lacerated or overstretched.

Uterine prolapse is essentially a hernia and in most cases can be traced to a difficult labor or to a series of labors. In very rare instances prolapse has appeared in women who have never born children. There is no doubt but that it appears more frequent in women who are rather short and who have shown marked

increase in weight as they reach the menopause. The condition is most often found in the patient who is obliged to be upon her feet for a great length of time and obliged to perform hard manual labor and we can therefore assume that increased intra-abdominal pressure is a causative factor.

There are few cases of uterine prolapse in which some other pelvic structures do not show marked relaxation. To simplify the degree of the prolapse the descent may be separated into three degrees: (1) The uterus descends on increased intra-abdominal pressure or can be pulled down (descensus); (2) the uterus descends so that the cervix protrudes from the vulva, and (3) there is a complete prolapse from the vulva and the uterus also drags down the anterior and posterior vaginal wall. It is felt that in some cases a rectocele may be only a combined condition with prolapse and not caused by the prolapse.

OPERATIVE PROCEDURES

The author has seen a number of cases in which the operative procedure has been limited to either an abdominal operation in which the uterus was suspended or a vaginal operation in which the cystocele and perineum were operated upon and the prolapse ignored. The selection of the wrong operation or combination of operations gave poor results.

Prior to three years ago nearly all cases coming under our observation that had a uterine prolapse, a cystocele, a rectocele or lacerated perineum were operated upon by the combined vaginal and abdominal operation. The procedure was at that time an anterior colporrhaphy and perineorrhaphy and the uterus was suspended by a Gilliam operation. Some cases were operated upon by the Watkin's interposition operation but our results and the results obtained by others were far from satisfactory and the operation was discarded for the general run of cases. In several instances results were formerly obtained by uterine fixation, the Mayo operation for prolapse, and several other meth-

ods and these are used now occasionally in selected cases. It is the author's personal opinion that a hysterectomy, unless the uterus is diseased, has no place in an operation for prolapse.

The operation for prolapse must be selected to suit each individual case and not the case made to suit the type of operation. A great number of failures are due to snap judgment in the selection of the type of operation to be used and the operator using the technic that was used during his hospital internship and was being used to "run a series of cases."

There are a number of factors to be considered before we select the type of operation. It must be determined just what degree of prolapse is present, the condition of the cervix, size and shape of the uterus and if there are myomata present. It is important whether or not there is present any endometrial hyperplasia or any adnexal disease. It is wise in most cases to precede our major operation by performing a curettement for diagnostic purposes.

The age of the patient and whether or not she is in the child-bearing age are important.

The physical condition of the patient is important and it is not advisable to operate upon patients with diabetes and cardiac-renal disease. There is generally no great contraindication in those cases that have mild cardiac diseases and age is of little consequence in cases that are otherwise free from the above conditions. Our oldest case was a Negro 76 years of age that had an enormous procidentia with a large cystocele and rectocele. This patient was operated upon under local anesthetic and twilight sleep and made a nice recovery and to date has had no recurrence.

There is no question but that there is less shock and morbidity following vaginal operations than in laparotomies but there are certain types of operations for uterine prolapse that cannot be used in women in the child-bearing period.

I feel that some of the gynecologists have gone just a little too far in advocating vaginal operations for all cases. Fortunately we do not often see complete prolapses with large cystoceles in women much under 45.

It is my opinion that the operation that is to be presented; namely, the Manchester or, as it is sometimes called, the Manchester-Forthergill operation is best suited for women past the child-bearing age and that a combined vaginal and abdominal operation should be used in women before the menopause. Several cases have presented themselves that have had the Manchester operation (with removal of the cervix) and have had most severe complications during labor and were delivered by cesarean section.

Physicians, not properly acquainted with modern operative procedure for the cure of uterine prolapse, may tell their patients that the only operation possible in their case is a hysterectomy or that they are too old to undergo a surgical operation. These two statements have caused many a woman to go through life a semi-invalid.

The Manchester operation is in no way a new procedure; according to Fletcher Shaw it was originated in 1888 by Donald of Manchester, England, and has been in vogue in that clinic ever since.

In 1933 Fletcher Shaw presented his improved technic of this operation before the American Gynecological Society and it was after reading his report and hearing him talk before the St. Louis Gynecological Society that the author adopted this operation for prolapse in certain selected cases. While the number to date is limited (thirty-seven cases) the results have been most gratifying and the patients have been much pleased. In this series no cases have been operated upon who were in the child-bearing age and only cases that had what might be called a second or third degree prolapse were selected.

Curtis has made the statement that "marked prolapse of the uterus complicating a cystocele, occurring in women of the child-bearing age, usually requires abdominal correction of the retrodisplacement in addition to the vaginal operation; in older women a vaginal operation alone." The Watkins-Werthem operation is finding a more and more restricted field of usefulness in these cases.

OPERATION

A detailed description of this operation is more or less unnecessary as it has been described in a number of the latest textbooks on gynecology and in several monographs but it will be described as a review.

The technic has not been changed in most of the cases and in those cases in which the exact steps were not followed the changes were of minor importance so that we might say that there was no variance in the method which follows.

Briefly the operation is an anterior colporrhaphy, an amputation of the cervix, a posterior colporrhaphy and perinorrhaphy.

In those cases having a large procidentia with ulceration of a portion of the protruding vaginal wall it is necessary to keep the patients in bed until this eroded area is healed.

The preoperative care consists of bladder irrigations, the vaginal instillation of acriflavin the night before the operation and the morning of the operation and proper bowel elimination

by enema. As a preanesthetic anesthesia we use morphine gr. $\frac{1}{6}$ and hyoscine hydrobromate 1 cc. (1/1.32 gr.). Gas (nitrous oxide-ether or ethylene ether) was used in most cases but several were done under local anesthetic. Spinal anesthetic was not used.

It has been found advisable to dilate the cervix and perform a curettement before proceeding with the operation. The dilatation is necessary as in a later step in the operation it is necessary to insert sutures within the canal of the cervix. The curettement is necessary in order to eliminate any possibility of there being any pathology within the uterine cavity.

Good exposure is essential and good retraction by competent assistants aids greatly in the ease with which the operation can be performed.

The technic is as follows: The uterus is drawn down by a vulsellum forceps that grasps the cervix and is held tense in order to put the uterus and adjacent structures on a stretch.

A transverse incision about two to two and one half inches is made through the vaginal mucosa where it joins the cervix. A pocket is now opened up by blunt dissection upward and outward. When sufficient room is obtained it has been my procedure to make an incision upward and at right angle to the first incision. This later incision is carried upward to just below the meatus, care being used to avoid the urethra. If the right plane is opened the incision is made with ease and little or no bleeding. The two incisions now make two lateral flaps which are grasped with forceps and by careful blunt dissection are pulled outward exposing the bladder and tissue over the cervix. As a rule there are several areas of bleeding found where the dissection reaches the tissue upward and outward in the upper angles. This bleeding should be stopped by isolation of the bleeding points and ligation.

It has been my habit to cut away the flaps on each side that were dissected loose, leaving stumps about 2 cm. wide.

The next step consists in pushing up the bladder from its attachment to the cervix and blunt dissection is here again used. After the bladder has been freed the cervix is freed from its attachments to both broad ligaments by dissecting away the vaginal mucosa by exposing, ligating and cutting the lower portion of each broad ligament. The vaginal mucosa is then dissected from the cervix posteriorly. By pushing back the tissue surrounding the cervix this structure is fully exposed and a high amputation of the cervix is carried out.

The severed ends of the broad ligaments are now sutured anteriorly to the uterus.

Three or four sutures are now used to draw the fascia from each side and are tied in the

midline, first being anchored into the uterus. This procedure does away with the cystocele and tends to elevate the uterus.

With the cervical canal dilated the vaginal wall is now attached posteriorly to the cervical stump according to Sturmdorf's technic. The stumps of the vaginal flaps that have been cut away are now united over the cervix by interrupted sutures of No. 2 twenty day catgut.

In those cases in which there is a marked rectocele the procedure is as follows: This operation can be done either by the method brought out by Donald in which the vaginal incision is made as far back in the vagina as the rectocele extends or by starting at the vaginal orifice. The later procedure is the one we have been following and briefly consists in making a transverse incision at the mucocutaneous junction and opening up the perineum and separating the rectum from the vagina as far back as the rectocele extends. An incision is then made at right angle to the first incision extending back as far as dissection has gone. In this way two flaps are made (similar to the operation for correction of the cystocele). The rectum is partially freed downward and laterally, the fascia brought from either side and sutured in the midline over the rectum care being used to obliterate all dead spaces. The flaps on each side are now trimmed off and the stumps of the flaps drawn to the midline and the floor of the vagina is closed to about one and one half inches. This area is left open to be closed after the perineorrhaphy is finished.

The perineorrhaphy used in these cases is the one first reported by Dr. Walter B. Dorsett before the American Medical Association in 1912 and is founded upon sound anatomical principles. This operation has been copied by numerous writers, some of whom are not mindful "to give credit to whom credit is due."

This procedure is extremely simple and consists of a transverse incision (this has already been made where a posterior colporrhaphy has been done) that opens up the perineal body. By blunt dissection with the proper kind of dissecting scissors, two pockets are opened up backward and downward until the levator ani muscles are exposed on each side. These two muscles are grasped by towel clips (artery forceps would tear these muscles), are drawn up and together in the midline and sutured by interrupted sutures, care being used that there are no dead spaces remaining. The transverse perineal muscles, fascia, fat and skin are now sutured in regular order. The last inch of the anterior colporrhaphy that had been left open is now closed.

The original perineal incision had been transverse but in closing the perineal structure, there

has been built up a new perineal body and there is now a vertical line of closure, thus increasing the distance between the vagina and the rectum.

CONCLUSIONS

1. It is not necessary to perform an abdominal operation for uterine prolapse.
2. Hysterectomy should be reserved for those patients in whom the uterus is diseased. Removal of a normal uterus for the cure of prolapse is unnecessary.
3. Even the worst types of prolapse of the uterus may be cured by vaginal plastic surgery.
4. Age is a minor factor when the patient is in good health.

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OXYGENATION IN RELAPSING AMEBIASIS

Meyer Golob, New York (*Journal A. M. A.*, May 16, 1936), employed oxygenation of the colonic tract in a case of amebiasis in which recrudescence occurred after a period of veritable clinical arrest. Ileotomy was considered, but the condition of the patient made such intervention extremely inadvisable. Further, while acute septic symptoms might be relieved, the damaged colon would not regenerate. The author therefore chose to treat the case as a secondary ulcerative colitis, based on a mucosa made vulnerable by the ameba, an environment in which even normal colonic dwellers, saprophytes, become virulent and pathogenic. He feared to administer the recommended dosage of oxygen ("seven hours of oxygen per day administered every other hour between 8 a. m. and 9 p. m. provided a gaseous content of approximately 1,750 cc., or almost 2 liters") because the ulcerated areas and copious oozing of blood indicated danger of perforation. He commenced with a dosage clinically comfortable to the patient given in alternate hours between 8 a. m. and 8 p. m. Nocturnal administration of castor oil enabled better toleration of the distention caused by the incoming oxygen. No belching was noted. The expulsion of debris, mucus and coagulated blood from the wall of the intestine permitted ready access to the incoming oxygen. No rule as to the duration of oxygenation could be observed, however, dosage and frequency being governed by tolerance of the patient. The response to oxygenation was spectacular. The patient's appetite assumed an avaricious aspect. Her markedly dehydrated clinical picture improved rapidly.

PROTAMINE INSULIN

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The development of insulin therapy has been extremely interesting and on the whole very satisfactory. The majority of patients can be managed quite well with two or three doses of insulin daily, are able to enjoy livable diets and, as a rule, can carry on their various occupations in much the same manner as nondiabetic patients.

Probably the most important factor from the patient's standpoint in the success of treatment is education, and I believe the ability of individual patients to maintain sugar free urine, normal blood sugar and blood cholesterol, and normal weight and strength depends on their familiarity with diabetic arithmetic and therapy. It is the duty of every physician treating diabetes carefully to instruct his patient in dietetics, physiology of diabetes and modern methods of treatment.

The above statements sound a little far-fetched when one considers the increasing death rate from diabetes but other factors than diabetic management operate in these figures. For example, more patients have diabetes, the average diabetic lives longer and when one controls acidosis and coma with modern treatment one immediately invites vascular changes, notably in heart, kidneys and brain. These facts do not alter the truth of the first statement.

There are at least two groups of patients who do not behave in the orthodox manner described above: (1) The insulin sensitive group, and (2) the insulin resistant group. The exact reason why these patients should be difficult to control has accounted for much of the work of late years in diabetes. Just why should a given patient run a very high blood sugar and excrete varying amounts of sugar in urine and not respond to insulin in the ordinary manner? Why should they be subject to severe insulin reactions even with comparatively high blood sugar? Why should they have a reaction at one time with a blood sugar of 150, at another time with a blood sugar of 65? And why are there such wide variations of blood sugar while on identical diets and insulin dosage with other patients who behave in a normal manner? The answer is not available but some suggestions are in order.

In general, one classifies these cases as insulin sensitive and insulin resistant. Insulin sensitive patients are usually young. The limit of insulin dosage is well defined. They have reactions if only a small amount of insulin in excess of their maintenance dosage is given. They tend toward emaciation, the dextrose

equivalent is high and insulin requirement is low.

The insulin resistant group is older, frequently having definite evidence of arteriosclerosis, often hypertension. They show less tendency to emaciation, the dextrose equivalent is low and insulin requirement is high. They seldom develop reactions unless large doses of insulin are given and they often have reactions due to an abrupt drop in blood sugar rather than to the degree of drop; occasionally, reactions are seen with blood sugar as high as 150 mgs. It is generally known at present that within individual limits insulin is secreted in a uniform manner during the 24 hours, the only difference between diabetic and nondiabetic patients being the total amount of insulin excreted in 24 hours. Therefore, to begin with, the customary two or three doses usually given in actual treatment only vaguely simulate the uniform secretion in normal cases. Ellis and Paul have attempted to simulate the normal secretion by using small doses every one, two or three hours as needed. The results are usually good but the patient rebels at such frequent injections. Ellis, also realizing that glucose alone stimulates the Islands of Langerhans to produce insulin, has given his severely ill patients small doses of glucose combined with insulin at one and two hour intervals hoping to stimulate the pancreas. This, too, has worked well but inasmuch as it cannot be continued long and since the good results are only temporary the idea has not received much lasting support. Other means to secure slow absorption of insulin have been tried such as combining insulin with oil, with vasoconstrictor substances, etc.

Hagedorn of Copenhagen has finally succeeded in reducing the solubility and slowing the absorption of insulin by combining it with protamine developed from the sperm of salmon. The iso-electric point has been increased until the time of absorption of insulin is almost doubled. Thus an insulin acting slowly enough to simulate normal excretion has been developed. The supply is limited at present and I have only had the opportunity of studying seven cases. These were chosen from a large number, four because of insulin sensitiveness associated with severe reactions, two because of coronary sclerosis with frequent heart cramps and one with abnormal cholesterol metabolism showing definite xanthoma diabeticorum.

Because of its slow action the sensitive cases can maintain fairly normal carbohydrate metabolism and have been free from reactions. The cases of coronary disease in which insulin is frequently contraindicated have been able to maintain good carbohydrate metabolism and at the same time the heart cramps have subsided

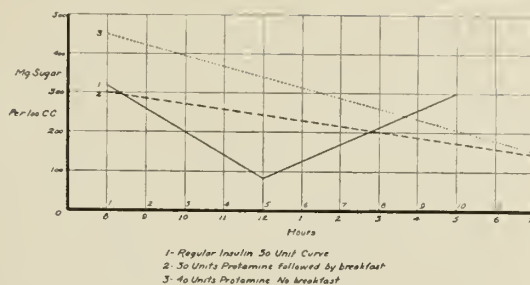


Fig. 1.

because there is not such a marked glucose vacuum produced by the slow working insulin, at least not in such a short time. I am of the opinion that it is the abrupt drop in sugar which causes the ischemia and anoxemia in the heart muscle of these patients and that these phenomena can be largely done away with when slow working insulin is used. The results with the boy with xanthoma, blood cholesterol of 750 mgs. and marked lipemia in serum, were unsatisfactory. He, however, responded well to high carbohydrate diet and regular insulin.

Figure 1 demonstrates the difference in time required by the protamine insulin to produce maximum results as compared to regular insulin. Breakfast was given one patient directly after the injection. The other patient was given no food during the 12 hours.

REPORT OF CASES

Case 1. Mrs. C., aged 39 years, has been under observation six years. She has hyperthyroidism, marked hypertension, blood pressure varies between 190 and 230 with a diastolic always more than 100. She has a mild arteriosclerosis. Refuses thyroid surgery. Is subject to almost daily reactions.

The upper part of figure 2 demonstrates our inability to standardize her on regular insulin. The reactions make her extremely apprehensive and nervous and in my opinion the nervousness has had much to do with her increased blood sugar and her blood pressure. The lower curve demonstrates her general reaction to protamine. It is interesting that her fasting blood sugar in the mornings is generally low, exactly as one would expect from looking at the upper portion of the

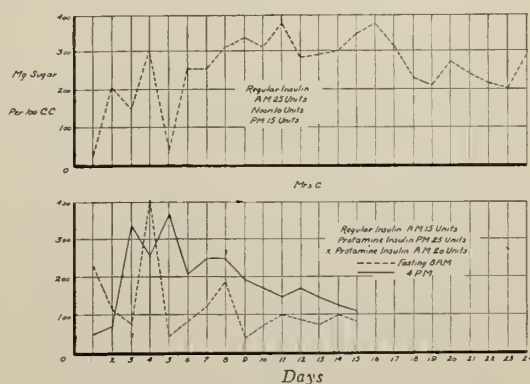


Fig. 2.

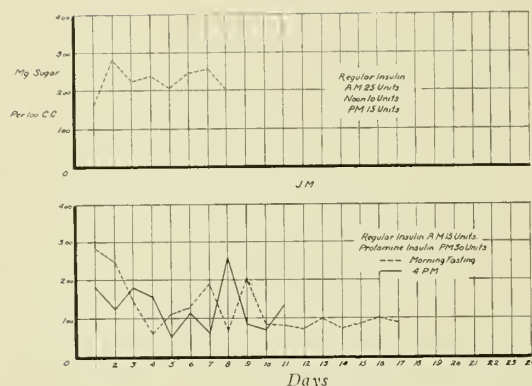


Fig. 3.

figure. While the 4 o'clock blood sugars are generally high, the regular insulin having produced its low point in from 4 to 5 hours is going back up in eight hours. Her reactions have practically ceased; she is less nervous; is up and attending to her usual activities and her blood pressure is from 20 to 25 points lower.

Case 2. J. M., aged 38 years, has been under observation on regular insulin five years. Does not observe dieting rules very well and, as the upper curve of figure 3 will show, has been unable to stabilize his blood sugar. Neither has he been able to stay sugar free. He is extremely nervous, has insomnia, and is subject to almost daily reactions. The lower curve shows similar findings to the first case. This patient is gaining but is free from reactions and conducts his business better than for several years.

Case 3. Mr. McC., railroad engineer, aged 41 years, has been under observation on regular insulin seven years. Follows diet and general directions religiously. We have been able to keep his blood sugar fairly normal and keep him comparatively sugar free, as noted in first curve of figure 4. However, this has been accomplished at the expense of frequent reactions. He has been demoted from engineer to fireman. The lower curve is much the same as others. The important thing is that he has not had a reaction since he has been on protamine insulin and I am informed he can resume his work as engineer if we can assure the company that he will not have reactions.

Case 4. Mrs. G., aged 42, has been under observation seven years and has been my most perplexing diabetic problem. She develops severe acidosis and coma frequently and without usual provocation. If we attempt to render her urine sugar free or maintain normal

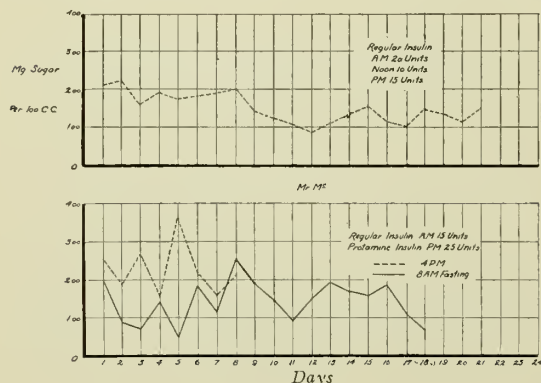


Fig. 4.

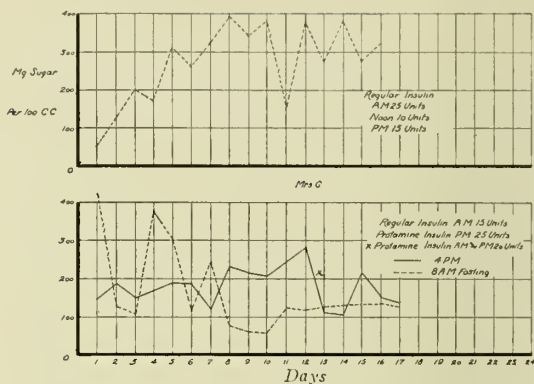
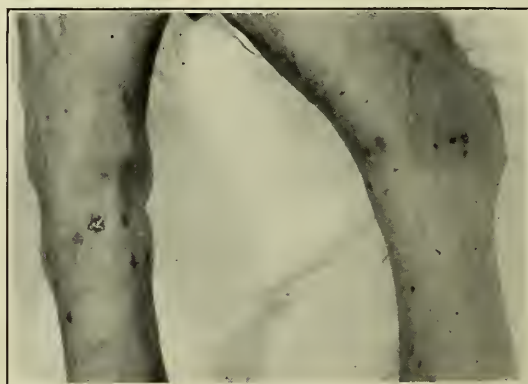


Fig. 5.

blood sugar she develops severe reactions even though her blood sugar might be as high as 150. These reactions seem to depend upon the abruptness of the drop in blood sugar more than the degree of the drop. She has hypertension and is very tense. We subjected her to roentgen ray over her adrenal and pituitary glands with remarkable results for about five months but after this time she developed her previous symptoms. The upper curve in figure 5 shows her general trend after the effect of roentgen ray treatment had disappeared. The lower curve, of course, shows the difference in general behavior on protamine insulin. She is free from reactions and is able to maintain her usual activities at home.

Case 5. E. D., is a boy aged 18 years who has been under observation twelve years. The interesting point in this case is his tendency to develop xanthochromia of hands and feet. This occurs in waves about 12 to 15 months apart. During these waves his blood serum shows marked lipemia and his blood cholesterol is markedly increased. Recently he developed definite xanthomata and coma. Protamine insulin was almost without effect. His blood sugar was 560 mgs. and his blood cholesterol 750 mgs. per 100 cc. He responded well to massive doses, regular insulin, Molar sodium lactate, intravenous salt solution and a high carbohydrate low fat diet. Within a week his blood sugar was normal and his blood cholesterol 235 mgs. per 100 cc. Also his blood serum was almost free of lipemia.

Case 6. Mrs. F., aged 65, has been under observation for four years. Has marked vascular change in general. Electrocardiogram shows evidence of coronary disease and her histamine reactions show marked dim-



Patient E.D. Lower extremities showing xanthomatous nodules.

inution of circulation in extremities. She has true diabetic symptoms, loss of weight, glycosuria, polyuria and hyperglycemia. She has frequent heart cramps on exertion and after heavy meals but always after enough insulin has been given to render her blood sugar normal. Since taking protamine insulin we have been able to maintain fairly normal carbohydrate metabolism and if she rests she is fairly free from heart cramps. Again I want to emphasize that, in my opinion, the reason for the cessation of heart cramps is the slow deliberate drop of blood sugar.

CONCLUSION

I think the action of protamine insulin simulates more closely the continuous secretion of insulin by the Islands of Langerhans than does regular insulin and is therefore much better in insulin sensitive cases. Also in insulin resistant older patients who have coronary disease, its slow action prevents the accompanying ischemia and anoxemia of heart muscle occasioned by the abrupt drop produced by regular insulin.

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THE DIAGNOSIS AND TREATMENT OF THE OCULAR COMPLICATIONS OF SYPHILIS

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The recognition and treatment of syphilis is in the majority of cases the business and responsibility of the general practitioner of medicine. The ocular lesions of syphilis occur with great frequency as the earliest manifestations of the disease whether it is congenital or acquired in origin. Syphilis causes about 15 per cent of all blindness throughout the nation¹ and in the metropolitan areas of this state accounts for about 22 per cent of the blindness existing.²

In the ocular structures loss of function is produced first, by a local inflammatory reaction in the eye such as iritis, keratitis or choroiditis, or the loss of function is secondary to the intracranial changes produced by syphilis as optic nerve atrophy, ocular muscle paralysis or invasion of the optic pathways.

In congenital syphilis 52 per cent of those seeking medical attention have or have had interstitial keratitis; only 22 per cent have normal eyes.³

Interstitial keratitis is a localized inflammatory reaction of the anterior segment of the eye. Most of the cases occur before the age of 12 in apparently healthy children who complain of a protracted "cold in the eye." The true nature of the disease can be recognized by the extreme photophobia, the obvious pain, the absence of

purulent secretion and matting together of the lashes such as occurs in conjunctivitis, the loss of the normal transparency of the cornea which early becomes invaded by blood vessels and the intense deep congestion of the vessels about the entire cornea. The infiltration of the cornea is always accompanied by an extreme engorgement of the iris and ciliary body of the eye. The process lasts from three to six months and is usually bilateral, although the involvement of one eye may precede that of the other eye by a long period of time. The treatment locally consists of first, adequate protection of the eye from light by a very dark glass, and second, the complete dilatation of the pupil. This may be accomplished by atropine sulfate 1 per cent aqueous solution using one drop in the eye every three hours until dilatation is secured. In small children it is best to advise the mother to obstruct the tear ducts by pressing the finger firmly against the inner corner of the eye to prevent any systemic atropine reaction. If at the end of twenty-four hours adequate dilatation is not secured the use of adrenaline solution in the eye is of aid. We use a suprarenin bitartrate ointment in 2 per cent strength in the eye in conjunction with atropine. Adequate dilatation of the pupil is the most important single phase of the local eye treatment as pain is lessened by immobilizing the sensitive iris structure and the blocking of the pupillary space by exudate and iris adhesions is prevented. Third, the use of heat locally is of value. This is ordered as hot wet packs for thirty minute intervals every three hours. The induction of fever has proven to be of value in clearing the corneal opacities in the acute infiltrative stages of the disease. We have been using the Kettering hypertherm unit which is a radiant heat cabinet for the production of fever. A body temperature of from 105 to 107 degrees can be maintained for any desired period of time. Practically a four to five hour period at about 106 has been used. Because of the limited facilities this form of fever therapy cannot at present be used in a great number of cases. The results of maintained high fever have been most gratifying.

The drugs used to combat the generalized syphilis are neoarsphenamine or sulpharsphenamine and mercury or bismuth. In a limited number of cases stovarsol, a pentavalent arsenical produced by Merck & Company in the form of 0.25 gm. tablets, has been used with entirely satisfactory results. Stovarsol can be given orally. The dosage depends on the weight and general reaction of the patient. One tablet per Kg. of body weight constitutes one course. Occasionally slight gastro-intestinal symptoms are produced. This product is especially valuable

in cases where adequate medical supervision cannot be obtained at frequent intervals or where intravenous therapy is impossible. In acquired syphilis, in a small percentage of cases, an interstitial keratitis develops. The signs, symptoms and treatment are as outlined previously. The acquired syphilitic has a very good chance of showing ocular changes in the first year after infection. Iritis and choroiditis are seen most frequently. The symptoms are photophobia, a dull aching neuralgia like pain in the eye and orbital region and a loss of vision. The visual loss is due to exudates into the interior of the eye; the visual blur cannot be removed by winking as the blurring from an acute conjunctivitis can and is present both for distant and near vision. There is no purulent discharge and there is no superficial scratching or cutting pain in the eye such as occurs with a conjunctival inflammation or with a foreign body in the eye. There is a pericorneal vascular engorgement which may be easily recognized and there is definite pain in the eye on slight pressure on the eyeball; the pain is often aggravated on rotation of the eye. The treatment locally to the eye is exactly that outlined for acute interstitial keratitis. In a moderate number of cases an infiltration of the vascular bed of the posterior of the eye occurs. This is known as a choroiditis and produces only one symptom, i. e., a visual blur or loss. Often this blur is noted as a floating cloud over the visual field and can occasionally be projected by the patient as a definite positive scotoma. If the choroidal lesion is near the portion of the eye used for central vision the visual loss is preceded by a distortion of the retinal images and considerable subsequent visual loss. There is no local treatment for this type of infiltration. The use of induced fever is of value in conjunction with the drugs used in combating syphilis. Relatively few cases of blindness result from the localized infiltrative lesions of ocular syphilis.

Ocular lesions secondary to the intracranial manifestations of syphilis are productive of about 20 per cent of blindness. Two general types will be outlined. The acute meningo-vascular lesions of syphilis of the central nervous system are usually accompanied by an involvement of the meningeal sheaths of the optic nerves and perivascular round cell infiltration of the nutrient vessels of the nerve. This produces various degrees of visual loss depending on the location and extent of the process. There is no ocular pain and there are no external signs of inflammation. There may be a severe type of headache associated with varying symptoms of meningeal irritation. The ocular diagnosis depends on the visual, perimet-

ric and ophthalmoscopic findings. The therapeutic problem here is a real one, i. e., the active inflammatory reaction in a closed cavity is productive of an increased intracranial pressure which in itself exerts a deleterious effect on the optic nerves if unrelieved. Treatment is carried out, if at all possible, in a well regulated hospital. The intracranial pressure must be relieved. This can usually be accomplished by spinal fluid drainage three or four times a week. Arsenicals are contraindicated because of the danger of producing a Herxheimer reaction with serious consequences to an already diseased eye. The drugs of choice are mercury succinimide or bismuth intramuscularly three times a week. Fever therapy induced by the Kettering hypertherm or by the graduated use of foreign protein intravenously is of value. We use typhoid vaccine intravenously for this purpose in the majority of cases. An initial injection of one hundred million bacteria is given and the dosage is doubled and repeated each succeeding forty-eight hours. The acute infiltrative lesions of this type respond beautifully to treatment.

In late syphilis of the central nervous system blindness becomes more and more prevalent because of optic nerve atrophy. In middle or late adult life many years after the original infection the syphilitic individual notices that the vision is not good. This may be an almost imperceptible loss of reading vision or it may be noted that when one eye is closed that the other is blind or seriously impaired. There is no pain and there are no external signs of the disease to be recognized by the patient or his friends. The majority of patients reveal Argyll Robertson pupillary changes which are of great significance to the physician. The ophthalmoscopic examination of the eyegrounds reveals the true picture of optic nerve atrophy. The visual fields often may be found to be constricted by rough tests on confrontation; this should be verified by perimetric examination. In a group of twenty-five cases of primary optic nerve atrophy of luetic origin which Dr. Cady and I have been following for a minimum of six years the following points are of note. Considering the twenty-five individuals as fifty single eyes we found on first examination seventeen eyes with a vision of hand motion or less; twelve with a visual acuity below 10/200 and twenty-one whose visual acuity was 20/200 or better. The visual field contractions on the average were in close accord with the extreme reduction of visual acuity. The striking feature here is that in 58 per cent of the eyes (twenty-nine out of fifty) the visual acuity was reduced below 10/200 at the time of admission. This degree of visual loss represents industrial blindness. The delay in obtaining treatment means

that in the majority of cases the stage of scar tissue formation is present; the changes already produced are permanent; no improvement can be offered to the patient, and no assurance that the visual loss can be arrested can be given. In this group of twenty-five patients fourteen have progressed to complete blindness; eleven have remained stationary.

The following therapy has been used. Since January, 1930, in the outpatient department of the Washington University School of Medicine the syphilitic patients with frank eye lesions or with central nervous system involvement are cared for in a separate division of the general luetic clinic. On admission the patient receives a careful general physical examination by an internist with complete laboratory studies; the central nervous system is carefully examined both by a neurologist and an ophthalmologist who then follow the case jointly. The treatment of the patient, who reports to the clinic twice a week, is carefully outlined with him on his first or second visit. We definitely convey to the patient the serious nature of the disease and the necessity for close cooperation between patient, social worker and physician. An adequate follow up service is of great value in a clinic of this sort. The tendency of the patient with ocular syphilis or central nervous system lues to lose heart, quit treatment or search for other forms of treatment is phenomenal.

In regard to specific therapy an attempt is made to avoid standardization, each case being carried as an individual problem. However, in general, the following is a brief outline of the specific therapy instituted in cases of optic nerve involvement: When the loss of visual acuity is below 3/60 and field defects encroach within ten degrees of the fixation area of both eyes the patient is told that the disease has a strong tendency to progress within a short time to complete blindness. Only very mild therapy such as a saturated solution of potassium iodide, ten drops three times daily, or mixed treatment is instituted for at least two weeks, then small doses of mercury succinimide are given intramuscularly twice a week. This is continued from four to six weeks longer and then small doses of neosalvarsan 0.3 gm. are given. If this is well tolerated it is soon augmented with tryparsamide beginning with 0.5 gm. intravenously. This treatment is carried out in some such manner as the following:

- (1) Mercury 1 cc. "1 M" (intramuscularly)
- (2) Neosalvarsan 0.3 gm. (intravenously)
- (3) Mercury 1 cc. "1 M"
- (4) Neosalvarsan 0.45
- (5) Mercury 1 cc. "1 M"
- (6) Neosalvarsan 0.45

- (7) Tryparsamide 0.5 gm.
- (8) Mercury 1 cc. "1 M"
- (9) Neosalvarsan 0.6
- (10) Tryparsamide 1.0 gm.
- (11) 1 cc. "1 M"
- (12) Neosalvarsan 0.6
- (13) Tryparsamide 1.5 gm.
- (14) Mercury 1 cc. "1 M"
- (15) Neosalvarsan 0.6
- (16) Tryparsamide 2.0 gm.
- (17) Mercury 1 cc. "1 M"
- (18) Neosalvarsan 0.6
- (19) Tryparsamide 2.5 gm.
- (20) Mercury 1 cc. "1 M"

After a rest period of a month this course is repeated. If at any time the patient complains of visual disturbance of any sort, the treatment is discontinued for two weeks and the patient then returns for further observation. The policy of the treatment might easily be summed up in saying "undertreat rather than overtreat."

Ocular nerve paralyses are due to direct involvement by gummatous disease in the orbit, a basal syphilitic meningitis, cerebral gumma and nuclear degeneration from disease of the blood vessels. At least one third of the ocular muscle paralyses are due to syphilis. The individual suddenly complains of blurred vision, vertigo, nausea and double vision or diplopia. There is no visual loss in either eye. The most frequent single muscle paralysis is that of the external rectus muscle and the eye can not be rotated laterally beyond the midline. Involvement of the third cranial nerve is associated with a marked ptosis and the eye is divergent. The symptoms are relieved by covering one eye with an opaque glass. These lesions usually clear rapidly in eight to twelve weeks without any serious residual. The treatment is that outlined previously under the consideration of primary optic nerve atrophy.

CONCLUSIONS

1. Blindness due to syphilis can be eradicated by the early recognition and adequate treatment of syphilis.
2. Treatment of the infiltrative localized eye lesion is very successful.
3. The treatment of optic nerve atrophy is often delayed so long that useful vision has been lost before therapy has been instituted.
4. In about 50 per cent of the cases of optic nerve atrophy, seen early and carefully treated, good vision can be maintained indefinitely.

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PATHOGENESIS AND PREVENTION OF COMPLICATIONS IN HEMATO- GENOUS PYOGENIC OSTEOMYELITIS

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About 1 per cent of admissions to the University Hospitals at Iowa City are due to pyogenic osteomyelitis. This series comprises 1500 instances of the disease of which 75 per cent were hematogenous in origin; 80 per cent of the latter group were chronic with a duration ranging between six months and seventy years. Chronicity with its attendant morbidity and mortality therefore claims our major attention and responsibility.

The devastating sequelae of pyogenic osteomyelitis continue because basic principles of treatment have not yet been universally adopted. These complications in turn recapitulate the entire clinical life history of the disease. Now the dovetailing of its phenomena are clearly evident. From this proper perspective there is a clinical harmony which should dissipate the general apathy of the profession toward this disease since the vast majority of complications depend upon the local skeletal lesion subsequent to the initial primary systemic infection. The key to the prophylaxis and treatment is thus revealed; namely, the primary and secondary control of pyogenic osteomyelitis.

Primary control of the disease involves the initial systemic infection and the determination of the local suppurative focus. These must be attacked in the order of their appearance. Henceforth the most aggressive measures continue to be directed against whichever predominates the clinical situation. Until contradictory knowledge affecting the relationship between the port of bacterial entry, the systemic infection and the local lesion is attained, adequate drainage should be established. This should be done as soon as the diagnosis of local suppuration is certain. Pyogenic osteomyelitis is not a surgical problem until this occurs. The general condition of the patient shall determine the extent of the procedure as will also the possibility of operation upon the anatomic localization. When the general condition is precarious simple incision will suffice. As a general rule, however, the proper preoperative and postoperative care allows adequate primary bone operation as advocated by Orr without contributing to the operative mortality. The successful termination of the acute stages of the disease rests upon the surgeon's experience, his surgical judgment

and the variable factors controlling infection in the human body. Perhaps the principle of immediate operation has been overemphasized at the expense of careful evaluation of the surgical risk. Such abuse of sound principles of surgery reflects unfairly upon the operative mortality and causes confusion in therapeutics.

Skeletal metastasis commonly attends the acute phases of the disease and was noted in 30 per cent of this series, of which two thirds were solitary and one third multiple. This complication predominates in the second decade but there is a relative increase in the succeeding decades. The humerus is most often affected. No part of the bony skeleton is exempt but its extreme peripheral portions are rarely involved. The large tubular bones are the most frequent foci of metastasis but no portion of the skeleton is immune. Metastases occurred three times as frequently in males as in females although the normal incidence ratio in this disease of males to females is 2:1.

Not infrequently such subsequent foci manifest themselves as well circumscribed subperiosteal or cortical lesions which may heal spontaneously. An obvious manifestation of metastases may mask or subordinate the more important initial localization when the latter occurs in one or more of the unusual situations such as the spine or pelvis. Metastases must be accurately diagnosed since soft tissue involvement may simulate osseous disease and lead to unnecessary and dangerous operation. Soft tissue dissemination occurs commonly in the later stages and seems to further the patient's resistance if he is already more or less immunized and in fair general condition. Visceral metastases are almost invariably fatal. In 2 per cent of cases the onset of the disease was in multiple initial foci.

The initial lesion must be completely eradicated before subsequent foci can be expected to heal or further dissemination prevented.

Secondary control of the disease is based on anticipation of pathological extension, sequestrum, secondary infection, persistent sinus, flares and above all locomotor disturbances. The patient now definitely becomes a veritable battleground between the conscientious surgeon and the almost inevitable local complications which are practically all preventable or amenable to treatment. Extension of the disease involves chiefly the adjacent joint or joints and the fascial spaces and their contents. Sinus formation enhances secondary infection, or even malignancy. Locomotor disturbances are caused principally by deformities of mechanical origin.

Joint involvement by extension or lymphogenous origin was noted in 20 per cent of this

series and is an almost every day occurrence. It is predicted by the anatomical capsular inclusion of the juxta-articular ends of the bones. The aspirating needle will determine the clinical significance of joint symptoms. Adequate drainage is imperative with definite joint participation in order to abort continuous reinfection of the bony focus and preserve the integrity of the articulation.

At least 7 per cent of the major complications could be traced to persistent sinus formation, the chief cause of which is basic activity of the disease or infection of the soft parts with attendant scarring or some degree of epithelization. Obliteration is impossible under such circumstances. Every effort should be made to induce healing, to the extent of employing the most radical procedures boldly whenever necessary.

Squamous cell carcinoma occurred in three cases from the skin surrounding chronic ulcerative sinuses. The lacunar absorption resulting from fibrocytic activity facilitates the ready invasion of the tumor tissue. The clinical symptoms of swelling, increase in pain, hemorrhages, more diffuse discharge and even the appearance of an abnormal growth are far more indicative of malignancy than the roentgen ray. Carcinomas rarely metastasize. The treatment of choice is amputation followed by irradiation.

Locomotor disturbances occurred in 30 per cent of this series and ranged from mild dysfunction to the loss of a limb subsequent to therapeutic amputation because of extensive destruction or irremedial deformity. The majority of locomotion disturbances were due to contracture, pathological fracture, dislocation or epiphyseal separation, pseudo-arthritis or growth disturbances.

Pseudo-arthritis results most frequently from indiscriminant resection of bone. Primary circumferential resection should be limited to portions of the body where there is some other bony support and should almost never be attempted where there is only one bone in the extremity, as in the femur. Where such resection is permissible in long bones it is imperative that fixed skeletal traction be provided postoperatively in order to maintain the length of the limb.

In adolescents some of the most serious and unhappy results of pyogenic osteomyelitis are due to growth disturbances incident to actual inflammatory involvement of the epiphyseal zone such as complete stoppage or an uneven rate of growth. In a single bone such as the femur the other epiphyses may compensate for this. Where there are two bones as in the leg or forearm deformity is inevitable. Shaft lesions not infrequently stimulate or retard

growth by toxic action at a distance. The early surgical treatment of juxta-epiphyseal foci may tax the best judgment. A conservative attitude is always permissible for the time being. In the presence of active destruction a careful operation is indicated to prevent extension into the neighboring joint.

CONCLUSION

While the entire problem is not solved a rational program for the primary and secondary control of the disease has been formulated. The early treatment in the acute stages will depend not only upon early diagnosis, but upon all the other factors governing systemic and local infection, especially the general condition of the patient, the presence of pus locally and the operability of the lesion. Above all we must remember that our responsibility in therapeutics merely begins with the initial intervention. The clinical life history of the disease demands persistent orthopedic supervision. The task as a whole is an arduous one and may well tax the strength, ingenuity and the patience of the surgeon to the utmost. This should be fully appreciated before accepting the responsibility.

The Orr method is recommended as the treatment of choice for pyogenic osteomyelitis. It is the only form of therapy that systematizes and combines the principles of adequate surgical drainage with sound orthopedic postoperative supervision. It embraces the principles of adequate drainage with adequate rest of the parts in a neutral position to prevent deformity and secondary infection by infrequent dressings under aseptic precautions. The method is earning world wide recognition because, for one reason or another, antiseptic methods are losing ground in the treatment of infected wounds and modern surgical craft approves the uniformity and simplicity of technic.

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E. E. Aegerter, New York (Journal A. M. A., May 16, 1936), adds a case of his own and one case from the records of the Willard Parker Hospital which in history, symptomatology and pathology give the typical characteristics of the Waterhouse-Friderichsen syndrome. The syndrome was first accurately described in the literature in 1901. Since that time it has been recognized in England and Germany as a disease entity. The symptomatology includes sudden onset, malaise, restlessness, and often gastro-intestinal symptoms. These are followed shortly by lethargy, which rapidly deepens into coma. High fever, weak, rapid pulse, intense cyanosis and purpuric hemorrhages into the skin are characteristic. The disease is usually fatal in from sixteen to twenty-four hours. Massive, bilateral adrenal hemorrhage is the most common postmortem observation. The etiology is probably a fulminating meningococcemia. Suggested therapy includes adrenal cortex extract, epinephrine, sodium chloride, fluids, antimeningococcus serum, dextrose and transfusions.

ETIOLOGY OF MESENTERIC THROMBOSIS

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The etiology of mesenteric thrombosis has been given little attention in medical literature chiefly because the disease is relatively rare. It occurs suddenly and many patients die before any lasting impression of the onset or course of the disease is recorded. It is a rare accident in nature and few cases are ever observed in the larger medical centers where accurate statistics might accumulate. Therefore it appears worth while to report four patients with mesenteric thrombosis now alive on whom we are able to review hospital records and follow up histories as well as make physical examinations and laboratory tests at the present time. These four patients are all young; they are free from arteriosclerosis or other vascular disease. This narrows the field in a study of intravascular clotting and rids it of many factors present in coronary thrombosis and infarction in other organs complicated by degenerative changes incident to the later years of life.

CASE REPORTS

Case 1. Mary, aged 13, slightly small for her age, was a bright pupil in school. She enjoyed fairly good general health and she was very ambitious to play basket ball. She played morning, noon and night. She menstruated the first time eighteen days before the onset of her mesenteric thrombosis. Three days before the onset of the disease she had a severe bleeding from the nose. She had been troubled with bleeding from the nose at times all her life. Her mother also has hemorrhages from the nose. There is no other family history of hemorrhagic or thrombotic disease. No illness or accident is recorded in her hospital record, of eight years ago, except a slight fall in the gymnasium ten days previous to the onset of the disease. She felt well until the spell of nose bleeding occurred three days before entering the hospital. This caused no break in her school routine except stopping her from playing basket ball. She looked quite ill on entering the hospital. A mass was felt in the right lower part of the abdomen extending upward and medianward to the umbilicus. Her abdomen was somewhat tender and slightly rigid. The temperature was 101 degrees, leukocyte count 23,800, blood pressure 125 systolic, 80 diastolic. The diagnosis was "Walled off abscess of the appendix." Large mass of necrotic bowel was found but the appendix was not involved in the necrosis and it appeared normal. One meter of small intestine was resected and the pathologist reported the entire wall was necrotic. The distal portion of the bowel was closed at the ileocecal valve and the proximal portion was brought out of the abdominal wound as an ileostomy. The wound was packed with gauze and ten days later a side to side anastomosis was made with the ascending colon near the ileocecal junction. She made a good immediate recovery. She was troubled

with loose bowels at times for about three years but she says she is all right now if she watches her food. Milk and eggs give her severe abdominal pain and diarrhea. Meat also causes this trouble but to a less extent. She has suffered from this abdominal pain and diarrhea when she has eaten milk, eggs and meat ever since she can remember. No other foods have caused any disturbance of like nature. It is, therefore, not the want of an ileocecal valve that has caused the loose bowels although this part was destroyed by the disease and reconstructive operation.

Case 2. George, aged 12, fairly well nourished, was operated upon for gangrenous appendicitis March 9, 1931, with good recovery. Played actively with other boys during the spring and summer months, attended school during the fall until November 13, 1931. He ate a hearty meal that evening and enjoyed running at hide and seek and other games until about 8:30 o'clock when he went to bed. The attack of thrombosis came on about midnight. He was taken to the hospital. He had a mass in the right lower part of the abdomen near the internal abdominal ring. The temperature was 99.5 degrees, pulse 100, leukocyte count 15,900. The diagnosis of hernia reduced en bloc was made and the abdomen opened through the right internal abdominal ring under a local anesthetic. A necrotic bowel was encountered. The blood pressure was 88 systolic and 50 diastolic. On his previous admission to the hospital the blood pressure was 110 systolic and 50 diastolic. A small rubber tube was placed in the section of black bowel and gauze drains packed in the wound to the bottom of the pelvis. Hypodermoclysis of normal saline was given during the night. The patient showed improvement the following morning. He was given ether anesthesia and 25 cm. of devitalized bowel was removed. No kinks or torsion of the mesentery were found and no adhesions of importance. The operative diagnosis of probable mesenteric thrombosis was recorded on the chart. A lateral anastomosis was made at this time. A small catheter was inserted in the invaginated end of the upper segment of bowel. This failed to close after the tube was removed. It gave a troublesome fistula which was closed several months later. The boy is now in good health. No fault could be found in a detailed history of his diet. He was always given at least a pint of milk daily; he ate meat sparingly and had fruit and green vegetables. No family history of hemorrhagic or thrombotic disease was found. He showed a fluctuating blood pressure and had a previous thrombosis in his appendix. Like the previous case this occurred at puberty.

Case 3. A nurse, aged 24 years. The details of this case were reported in the *Journal of the American Medical Association*, July 9, 1934. The thrombosis occurred higher up in the ileum than any of the other three cases herein reported, the other three being located at or near the ileocecal junction. The patient felt well and had been engaged on twelve hour duty as a nurse at night most of the time for several months. She was living at the home of her mother-in-law and helping with house cleaning and, at the same time, she and her husband were furnishing a house and doing work about the place preparing to move into their new home. During the two weeks preceding the onset of the thrombosis she rode four hundred miles in an automobile on a week-end visit with friends in Iowa. The evening before leaving on the trip she attended a dance with her husband. During the day on which the first symptoms of the thrombosis occurred she walked up town, about a mile, and walked home after having her hair marcelled. She complained of being a little tired

before supper and feeling unspeakably hungry. Nothing is significant in what she ate the day preceding the onset of the disease. She ate some kind of meat. She eats meat quite freely all the time. She remembers having fried onions the night before. The pain and vomiting first began about midnight. We delayed operation two days because of the comparatively mild type of ileus and because of the uncertainty of the diagnosis. I believe this was fortunate because the blood balance was established and no further thrombosis occurred.

Case 4. Mrs. C. W. P., aged 29 years. She was married at 18. Twin boys were born when she was 19. Divorced early after the marriage. The support of the boys depended upon her own efforts. She was operated upon January 21, 1934. An appendix 9 cm. long was described on the pathologist's report, "Mucosa dry, smooth and pale." The pelvic organs were normal except for relaxed uterine ligaments. An anterior shortening of the round and broad ligaments was done. She made an uneventful recovery and resumed her work one month later. This work constituted more than a strenuous life. She worked from 7 a. m. to 10 a. m. in a grocery store; from 10 a. m. to 2 p. m. in a restaurant; from 2 p. m. to 6 p. m. in the grocery store. Then she went home and did her own house work. This continued until June 7, 1934, when she was married. She went for an automobile tour of a few hundred miles and came back in about a week. They bought a small pony for the boys. She worked hard; papering, varnishing floors and woodwork and moving into her new home. She was assisted by her mother-in-law who was temporarily detached from her own home because of her own domestic difficulties. After about three weeks of interior decorating, furniture moving, taming the Shetland pony which dragged her about roughly at times, being in the presence of a disconsolate mother-in-law and of her new but to all appearances happy marriage, she developed, July 12, 1934, severe abdominal pain, vomiting, moderate distention of the abdomen and some muscle rigidity. This was diagnosed as mesenteric thrombosis. She was operated upon twelve hours after the onset of severe symptoms. Premonitory symptoms of pain and bloating had been present two weeks earlier. Forty-five cm. of necrotic intestine was removed near the lower end of the ileum. Some healthy intestinal loops were found loosely adherent to the gangrenous bowel. There was no kinking or torsion of the mesentery. The adhesions were easily separated. A resection of the necrotic bowel was done and the continuity of the ileum was restored by side to side anastomosis. Cigarette drains were placed in the pelvis and the abdominal wound was packed wide open after protecting the bowels by omentum as much as possible. This treatment was continued for eight days during which the gauze was replaced every thirty-six to forty-eight hours with fresh packing under gas anesthesia. The abdominal wound was closed and convalescence was uneventful. Her health is good at the present time.

The health of each of the four individuals is good at the present time. The mesenteric thrombosis occurred eight years, five years, two years and one year ago, respectively. I felt that there might be a constitutional unbalance showing physical or chemical deviations from the normal in some or all of them. Dr. Mervin Rummold, a graduate student in the University

of Kansas, has interested himself in these patients in connection with his studies on thrombosis. He has carried out laboratory tests in the University Hospital laboratory on all of them. The blood pressure findings are taken from the hospital records at the time of their illness. Their blood pressure readings and physical findings are essentially normal at the present time. The laboratory reports do not vary from the normal in any important detail. A table of the laboratory findings follows.

Table 1. Laboratory Findings

	Age	B. M. R	Blood Cholesterol	Blood Systolic	Pressure Diastolic	Platelets	Blood Calcium
Mary	13	-2.5%	173	120	60	225,000	11.6 mg.
George	12	-6 %	214	110	70	280,000	8.8 mg.
Nurse	24	-2.5%	220	116	100	270,000	11.3 mg.
Mrs. G. W. P.	29	-2.5%	232	100	65	220,000	11 mg.

Three points common to all of these cases stand out with only slight variations: (1) Prolonged fatigue, (2) prolonged emotional strain, (3) an unhealthy state of the gastro-intestinal tract.

The nurse and Mrs. G. W. P. run closely parallel in these three factors. The one did twelve hour duty as a nurse at night, lived at the home of her mother-in-law, helped with the housework, attended parties, had her hair modelled the day before the onset of the disease, worked odd hours getting her own home ready to live in and rested up by taking a long automobile ride over the week-end. The other had an early marriage and early divorce, twin boys to support, to clothe and feed, and maternal care which she constantly felt was inadequate, a final effort to work at two jobs with severely long hours and then a second marriage. Her outside work stopped but new work in her home as varnishing floors and papering walls, in addition to her mother-in-law and a week spent on a honeymoon automobile tour was followed closely by her physical break down.

George and Mary are likewise parallel cases. They were 12 and 13 years old and both from families where poverty prevented any easy outlet for the ambitions and emotions of puberty. Their homes were clean and the hope for advancement led them to strenuous efforts in competitive sports and their school work.

A physiological explanation for emotional strain and fatigue as factors in the etiology of mesenteric thrombosis is found in Cannon's experiments which he calls "Researches Into the Function of Emotional Excitement." Cannon proved that fatigue and emotional states induce the secretion of adrenin into the blood which reduces the clotting time of blood to one

half of the time required before adrenin enters the blood. A marked change in the cellular content of the blood also occurs. In Cannon's¹ experiments a preparation of intestine was suspended in Ringer's solution. The addition of 1/200,000,000 part of adrenin to the Ringer's solution caused inhibition of contractions of the intestinal musculature. These experiments of Cannon with the preparation of intestine aimed only to test for the presence of adrenin but, the result of adrenin in producing stasis of the intestine and a change in coagulability and quality of the blood, describes the conditions present in an intestine when thrombosis in the mesenteric vessels occurs.

The course of the blood vessels in the wall of the ileum may be a contributing factor to thrombosis because of slowing of the blood stream; a loss of tone occurs and the intestinal wall is stretched when muscle contractions are inhibited by adrenin secreted in increased amounts by the stimulus of fatigue and emotional excitement. The vessels of the ileum pierce the muscularis soon after leaving the mesenteric attachment thus, with a motionless intestinal wall, the vessels are pressed upon by the intra-intestinal pressure by a valve like action. Obliteration of the blood vessels of the intestine occurs under unfavorable conditions with moderately increased pressure.

The products of digestion further contribute to thrombosis in the mesenteric vessels. Mills⁴ states that the clotting time of blood is greatly reduced after a protein meal. Meakins and Harrington⁵ have found that many poisons are formed in the intestine due to a slightly altered physiological state. Histamine⁶ is one of these poisonous products. Histamine belongs to the ergot preparations and it produces a fall in

blood pressure and an engorgement of the intestinal capillaries. Herrick⁷ and others have found a normal increase in blood flow in the superior mesenteric artery following the digestion of any kind of food. Therefore, a bowel containing products of digestion with its function impaired by fatigue and emotional conditions appears to be more liable to thrombosis in its blood vessels.

A third point of similarity in these four cases of mesenteric thrombosis is the presence of a pathological condition of the gastro-intestinal tract. Three of the cases had appendicitis with appendectomies within a year of the time of the mesenteric thrombosis. One was gangrenous, one had mucosa pale and smooth and the third had redness and capillary hemorrhages. The fourth case had sensitization to milk and eggs as long as she could remember.

A pathologic condition of the gastro-intestinal tract may contribute to thrombosis directly by the presence of bacteria and other injurious agents. It is also probable that the mucosa of the intestinal tract, under pathologic conditions, is impaired in the production of antithrombin. Howell⁸ states as a probable theory for the means by which the fluidity of the blood is maintained that there is a "normal balance" between thrombin and antithrombin. Howell mentions the liver and the uterus during menstruation as producing antithrombin. The salivary glands in the head end of the leech furnishes antithrombin in almost a pure form; peptone from the stomach glands acting on protein produces antithrombin. Thus, antithrombin, from all available knowledge, is derived from tissues of endodermal origin. On the other hand, thrombin has its origin in the blood platelets and the leukocytes, in the blood vessel wall and muscle tissue, all of mesoblastic origin. The blood vessels and the blood islands lying always between mesoderm and endoderm in the earliest embryo may have some significance in the maintenance of the fluidity of the blood. Vessels form in the yolk sac but pass into the embryo very early and lie between the visceral mesoderm and endoderm. According to Minot,⁹ "The same pathway between germinal layers is followed in all vertebrates by the first vessels as they grow into the embryonic body."

The gastro-intestinal tract is an important factor in many diseases of the blood. The sore mouth, the atrophic tongue papillae and the altered gastric secretion have long been inseparable from anemias and hemorrhagic diseases. Substitution products of gastro-intestinal origin in the treatment of these blood diseases is a more recent practice. Likewise, the normal balance of blood is disturbed by an overproduction of mesodermal tissue in hemolytic jaundice,

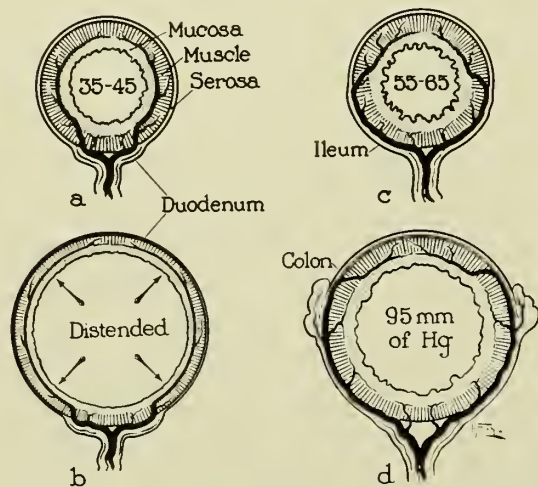


Diagram by Alton Ochsner. Distention of bowel causing intraintestinal pressure to rise in the ileum from 55 to 65 mm. of mercury, causes venous obliteration after 24 hours. Adapted from Dragstedt, Lang and Millet² by Alton Ochsner.³

hemolytic anemia and hemorrhagic purpura and splenectomy aids in restoring this balance. Therefore, in view of the bodily changes brought about by fatigue, prolonged emotional strain and intestinal disease, it will clarify the problem of thrombosis to consider it a blood disease and not primarily a vascular disease.

Anyone who has observed the return of life to the gangrenous foot of a diabetic under insulin treatment can scarcely doubt the validity of this point of view.

CONCLUSION

In this report of four cases of mesenteric thrombosis three factors are outstanding in all of them. They are: (1) Prolonged fatigue; (2) prolonged emotional strain, and (3) a pathological state of the gastro-intestinal tract.

Many other factors may be important in the cause of thrombosis; i. e., heredity, climate, seasons, the endocrines, diet, especially vitamin A deficiency. Only those conditions which occur uniformly in these cases are considered relevant in this report. It is the combination of all three factors that appears to be effective in causing thrombosis.

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SELF-PERFORMED OPERATIONS

John G. Frost and Chester C. Guy, Chicago (Journal A. M. A., May 16, 1936), review the recorded cases of autosurgery which fall into one of four major groups: (1) surgeons who have operated on themselves, (2) normal minded individuals who have been forced by severe pain or in the absence of medical attention to perform autosurgery, (3) the sexual perverts and those suffering from an acute psychosis, intense sexual excitement, or anger resulting in self-inflicted mutilations or amputations, usually of the genitalia and (4) those who, because of utter ignorance or feeble-mindedness, have attempted the surgical correction of some obvious disease or abnormality. A case (group 4) of major autosurgery, twice performed with eventual recovery is reported. The patient's self-performed operations were undertaken for what seemed, to his simple mind, to be good reasons, castration and the resection of a loop of jejunum 11.5 cm. in length, the former was performed without any medical attention and the latter with surgical anastomosis eleven hours after the injury.

POLYNEURITIS IN PREGNANCY

A CASE REPORT

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Many of the pathologic conditions occurring in pregnancy are considered to be manifestations of some toxemia recovery from which may be obtained by therapeutic abortion. So far none of these hypothetical toxins has been identified. Formerly, the anemias of pregnancy were thought to be the result of some toxic condition but from the evidence of recent investigations they are now considered as arising from a lack of vitamin B, iron and related elements.

The patient in this report presents data favoring the theory that the polyneuritis of pregnancy is a dietary disease and may be effectively treated. The malady is one of the rarer complications of pregnancy which is associated with persistent vomiting and is recognized as a dietary deficiency disturbance.

Contrary to the pessimistic view held by some observers there are indications of the possible relief of the condition: First, the fetus removes many substances from the pregnant organism regardless of the maternal state; second, severe vomiting nearly always occurs many weeks preceding the onset of polyneuritis; third, there is a decrease in gastric secretory function in pregnancy and this may easily influence the course of dietary diseases, fourth, the pathological and clinical observations in polyneuritis are similar to those found in beriberi.

The cases reported by me previously⁶ have occurred among Italian women. The patients treated at this clinic live under very poor hygienic and dietary conditions and this disease has been observed more frequently during the last three years as a result of poorly balanced ration directly due to the present economic crisis.

From a study of these patients it is presumable that the polyneuritis of pregnancy is a dietary deficiency disorder and not toxemic in origin. This disease resembles beriberi polyneuritis which results from a lack of vitamin B in the diet. Polyneuritis frequently occurs in pregnant women living in regions where beriberi is endemic. In localities where beriberi is uncommon the condition may be produced only by the limitation in food consumption and absorption by starvation or hyperemesis. Again, there may be gastro-intestinal factors such as those which occur in pregnancy anemias. Operative interference should be avoided in such cases and a proper diet supplying the needed

⁶Read before the Jackson County Medical Society, April 3, 1936.

vitamins should be instituted to meet the deficiency.

REPORT OF CASE

Mrs. M. S., aged 32, entered Menorah Hospital November 20, 1933; discharged January 27, 1934.

History.—Vomiting last four weeks since October 25, 1933; weakness of both legs, numbness, since November 17, 1933.

Onset and Course.—Last menstrual period July 19, 1933. Had moderate nausea and vomiting. This had been relieved slightly but since November 17, 1933, weakness had developed in both legs, also tingling and numbness. Since November 19, 1933, a change had been noted in mental condition.

Physical Examination (Positive Findings).—Gross inspection reveals emaciated adult female in prone position, acutely ill. Skin dry with slight scaling, tongue dry, bright red gums soft with slight bleeding on pressure. Pulse 110; blood pressure 100/90; voice, high falsetto. Breasts are enlarged, nipples and areola dark, colostrum obtained from nipple.

Pelvic Examination.—Vaginal mucosa dark reddish color; cervix dark red, soft. Uterus symmetrically enlarged, soft throughout, in mid-position in pelvis.

Reflexes.—Abdominal reflexes absent; patellar reflex absent; ankle jerk absent; weak gripping action in both hands; hyperesthesia of skin of legs and abdomen. Disorientation as to time and space.

Laboratory.—Urine, catheterized specimen: Clear straw color; sp. gr. 1014; acid; sugar negative; faint trace of albumin; indican, diacetic acid and acetone blood, negative. Microscopic: Abundance of epithelial cells, occasional red blood cell.

Blood.—Hb. 77 per cent; coagulation time, 3 minutes; Wassermann and Kline, negative; leukocytes, 5800 (polymorphonuclears 62 per cent, lymphocytes 38 per cent); erythrocytes, 3,650,000.

Diagnosis.—Pregnancy, three months. Nausea and vomiting; polyneuritis in pregnancy.

Therapy.—(1) Viosterol (Meads) MXV daily; (2) Brewer's tablets (Meads) 5 daily; (3) Ca-diaphosphate Gr. V daily; later intravenously; (4) high caloric diet, fresh vegetables, fruit juices; (5) saline hypodermoclysis, 1500 cc. for two days; (6) 50 per cent glucose, 50 cc. intravenously, three doses.

On this régime the patient did not show much improvement. She continued to complain of pain and tingling in extremities and mental confusion increased. On December 8, 1933, bloody vaginal discharge was noted, also some decrease in size of breasts. Vaginal examination revealed a doughy retroflexed uterus which had not increased in size commensurate with amenorrhea.

Diagnosis.—Dead fetus. On December 10 dead fetus was removed. On December 14 complete paralysis of lower extremities occurred and loss of voice and involuntary urination and defecation was occurring. Marked coarse tremor was noted in hands which could not grip any test object.

Neurological Consultation.—December 15. Concurrence in diagnosis and approval of treatment with continuation of same.

Urine examinations on December 15, 16 and 19 were within normal variation.

Blood Examinations.—December 14: Leukocytes 6200 (polymorphonuclears 72 per cent, lymphocytes 28 per cent); erythrocytes 3,790,000; hb. 76 per cent.

December 16: Leukocytes 15,600 (polymorphonuclears 90 per cent, lymphocytes 9 per cent, transitionals 1 per cent); erythrocytes 2,750,000; hb. 58 per cent.

December 10: Stomach Fasting Meal. Total Acid, 30 and 10; free HCl 0 and 0; comb. HCl 17 and 7.

December 5: Blood chemistry, sugar 92; total NPN 24.4; creatinin 1.4; chlorides 420.

December 17: Blood transfusion. Some improvement in general condition.

December 21: Mental condition improved. Pain in legs not so marked. Paralysis still present.

January 10, 1934: General improvement noted. Rest is better; voice stronger; less tremor in hands; marked mental improvement.

January 27: Continued improvement in general condition. Pulse now normal. Has flaccid paralysis of legs.

At her home the following therapy was instituted: Daily hot baths with active and passive muscle movement while seated in the hot water; crawling on hands and feet a distance of 15 yards once daily and gradually increasing the distance and shortening the time element; active massage of the upper and lower extremities as well as the muscles of the back; grasping movements with the hands and feet one half hour each day gradually increasing the time element up to one hour, small objects as marbles used at first, later objects varying in size from that of a lime to that of a baseball. This type of treatment was persistently pursued for a period of six months and in July, 1934, the patient was able to report that she could walk unassisted, also could pick up various objects with the hands and toes and that there had been a lessening of the muscle atrophy.

I have seen this patient on an average of every six months and with a modified type of body massage she has completely regained muscle control of her body and now indulges in all of her former activities. At the present time she enjoys remarkably good health and carries a full course of work at the Teacher's College. She plans on attempting to become pregnant within the year and the final outcome of this attempt is awaited with great expectation by the patient's family and myself.

CONCLUSIONS

Polyneuritis of pregnancy is similar to beriberi both of which result from a lack of proper vitamins in the diet.

The correction of the dietary deficiency is obtained by supplying the vitamin B complex.

When pernicious vomiting of pregnancy occurs vitamin B should be used as a prophylactic.

To the three previously reported cases⁶ I wish to add a fourth, the most severe and protracted in its course, which developed interesting sequelae.

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MANAGEMENT OF SQUINT

C. SOUTER SMITH, M.D.

SPRINGFIELD, MO.

The purpose of this paper is to emphasize the importance of early correction of nonparalytic squint. A few years ago the family physician was not considered amiss in advising parents that a cross-eyed child might outgrow his trouble. Ophthalmologists were inclined to treat these cases by a prolonged use of glasses and to delay operative treatment until the patient was old enough to have the work done under cocaine.

That era in the management of squint has passed. Today we recognize that the object of treatment of strabismus is not only cosmetic improvement but the restoration of normal binocular vision. While the first is possible at any age the latter can be accomplished only in the early years of life. Therefore as soon as it becomes apparent that the squint is not responding to nonsurgical treatment, the eyes are straightened by operation without delay while the child is young enough to regain good vision in the squinting eye and to develop fusion.

There are four methods of treatment used in

overcoming squint; namely, well fitting glasses; atropinization or occlusion of the squinting eye; orthoptic training, and operation. Any or all of these may be used together with advantage.

GLASSES

Glasses will accomplish a cure in from 20 to 40 per cent of cases. To obtain maximal results three points are important; i. e., the accuracy of the refraction; the prescribing of glasses at as early an age as is feasible, and the elimination of those cases in which glasses are not indicated.

The error of refraction should always be estimated by retinoscopy after atropine has been instilled three times daily for three days and the full correction prescribed.

If glasses are indicated, the earlier they are fitted the greater will be the likelihood of cure from their use. A child of 2 years can be fitted with glasses and often one of 18 months will tolerate them if they improve his vision.

There are certain cases associated with an error of refraction so small that it cannot be considered a factor in the production of the squint. To prescribe glasses in such a case not only accomplishes nothing in the way of a cure but postpones the adoption of more effectual forms of treatment until a time when good results are



Fig. 1. Monocular convergent squint of left eye of 25'. Corrected by 5 mm. of recession of the left internal rectus.

less easily obtained. Just how great the error of refraction should be below which we can expect no cure from glasses is debatable. Dr. Samuel V. Abraham¹ suggests the following: Hyperopia of 3.00 diopters; astigmatism of 1.50 diopters; anisometropia of 2.00 diopters.

Where glasses have not straightened the eyes in six months they probably never will and other treatment is indicated.

OCCLUSION OR ATROPINIZATION OF THE FIXING EYE

In those cases of strabismus which are monocular the squinting eye loses its acuity of vision, a condition known as amblyopia ex anopsia (blindness from disuse). If uncorrected the eye remains blind or practically so throughout life and binocular vision is impossible. To restore useful vision we exercise the amblyopic eye by forcing it to do the seeing. This is done either by covering the good eye with a patch or by using atropine in it.

Occlusion, continuous or for a definite period each day, is the method of choice in that it brings about the greatest improvement in the shortest time. It is exceedingly difficult, however, for the child with poor vision. For the first few days he bumps into doors and furniture and becomes so discouraged that only a very cooper-

ative mother will continue with the treatment.

Some ophthalmologists prefer to use atropine in the good eye. It is less noticeable than the patch; its action is constant whereas the patch may be pulled off by the patient, and it seems less objectionable to both the patient and his parents.

The younger the patient the more readily amblyopia is overcome. Dr. Peter² who has had a vast amount of experience with squint believes that in children under 7 normal vision can be restored in most instances providing there is no organic macular pathology. After 7 the chances for cure grow less with each succeeding year.

ORTHOPTIC TRAINING

Orthoptic training of the fusion faculty is carried out with the Worth amblyoscope, stereoscope or similar instruments. With the development of fusion squint may disappear. There is great diversity of opinion as to the value of orthoptic training in straightening crossed eyes. Guibor³ in a series of cases in which he personally carried out the training was able to obtain the following results: "Fifty per cent showed no squint with glasses; 42 per cent showed no squint without glasses." On the other hand Hosford and Hicks⁴ conclude from their ex-

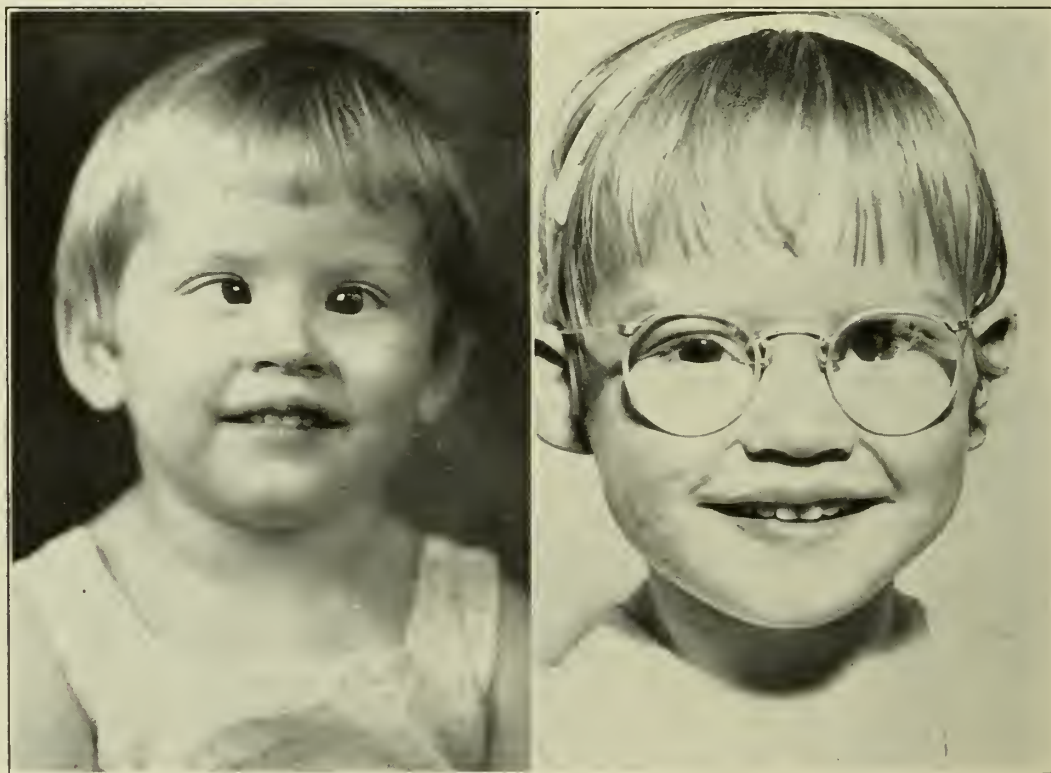


Fig. 2. Alternating convergent squint of 40'. Corrected by bilateral recession of 5 mm. of the internal recti.

perience, "Orthoptic training is of value in developing fusion, but it has a limited value in straightening crossed eyes."

Where glasses and orthoptic training alone do not effect a cure in a reasonable length of time it is well to straighten the eyes by operation and to follow up with more orthoptic training.

OPERATION

Operation is indicated in every case of squint which is not cured after from six months to a year of energetic nonsurgical treatment. The younger the child at the time of operation the more perfect will be the cure. Three years is not too young. The advantage of operating early is straightening the eyes while the child is still young enough to overcome amblyopia and to develop fusion. There are no disadvantages. Formerly it was thought that muscle operations upon youngsters under ether anesthesia were difficult and that there was no way of estimating the amount of correction unless the patient was awake. On the contrary, operation for squint upon a small child is not a formidable procedure. It is easy. And with the more precise methods of operation in use today one can estimate fairly well the amount of correction to be obtained from a given procedure.

Our election of operation depends upon whether the external rectus is to be strengthened, or the internal rectus weakened, or both. For the former we have advancement, resection, tucking and cinch shortening between which there is little choice. Each is safe and offers dependable results.

The same cannot be said of the two operations designed to weaken the internal rectus; i. e., tenotomy and recession. Complete tenotomy is a haphazard and dangerous procedure. If the tendon is severed freely one can never be sure what the end results will be. It may be followed by loss of convergence; it may result in retraction of the caruncle or in exophthalmos; it may in later years cause a divergence which is as bad or worse than the original squint. If the tenotomy is incomplete the results are negligible.

Recession of the internal rectus on the other hand is at once safe and effective and the approximate results can be computed in advance. Brought out twenty years ago by Curdy,⁵ it has been developed into the following precise and accurate technic by Jameson⁶⁻⁷: The tendon of internal rectus is severed at its attachment to the globe, is moved back an exact number of millimeters calculated to give the desired correction and sutured to the sclera. As the value

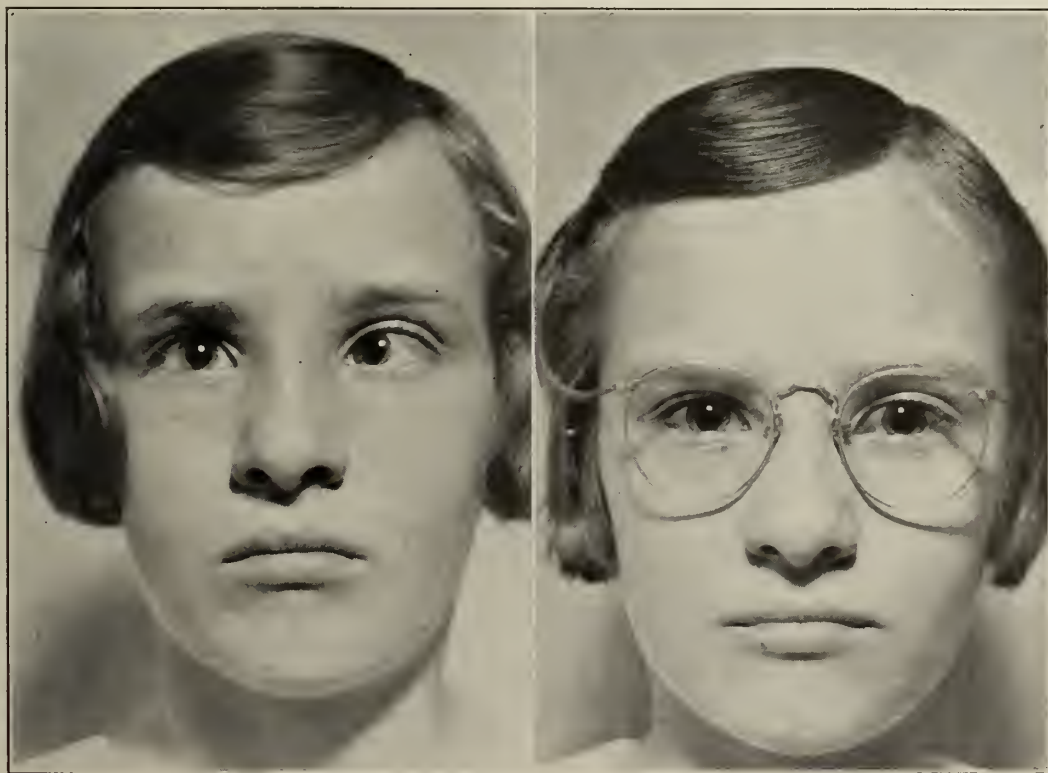


Fig. 3. Monocular convergent squint of left eye of 40'. Corrected by 5 mm. of recession of the left internal rectus combined with resection of the left external rectus of ten mm.

of recession becomes generally recognized it will come into the widespread use which it deserves.

Surgical treatment of squint is not to be considered final. In every case operation should be followed by such orthoptic training as is necessary to produce the best functional results possible. In children under 7 a perfect cure is to be expected.

Holland Building.

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OBLITERATIVE VASCULAR DISEASE: REPORT OF FIFTY-ONE CASES TREATED WITH PASSIVE VASCULAR EXERCISE

J. Herbert Conway, New York (*Journal A. M. A.*, April 4, 1936), employed passive vascular exercise in the treatment of fifty-one cases of organic vascular occlusion of the lower extremity. Experience with these cases supports the contention that treating organic vascular obstructions by an intermittent negative pressure environment is physiologically sound. Passive vascular exercise, given with the apparatus of Herrmann, caused improvement in 80.5 per cent of thirty-six cases of arteriosclerosis obliterans affecting the major and secondary arteries of the extremity. In nine of the ten cases of sudden vascular occlusion, the treatment given was effective. In four cases of thromboangiitis obliterans, no benefit was derived from passive vascular exercise. In one case of syphilitic endarteritis, the treatment was followed by moderate improvement. In no case was there conclusive evidence that passive vascular exercise had, in and of itself, caused serious complications.

PERMANENT PIGMENTATION FOLLOWING APPLICATION OF IRON SALTS FOR TREATMENT OF IVY POISONING

The prevalence of rhus poisoning and the apparent rarity of complications in cases treated by iron salts prompts Eugene F. Traub, New York, and Joseph S. Tennen, Stamford, Conn. (*Journal A. M. A.*, May 16, 1936), to report two cases with unusual sequels. After applying the ferric chloride solution to the lesions one patient states that her skin took on the appearance of a "colored person," with a diffuse discoloration and pigmentation of the affected parts. The use of this solution was then discontinued and a calamine lotion used until the acute stage had completely subsided, but the pigmentation remained. A small piece of tissue was removed from a pigmented area for histopathologic study. A large number of chromatophores was to be

found about the blood vessels and between the collagen fibers of the upper corium. Perl's stain showed blue granules in the chromatophores. The diagnosis was dermatitis with deep-seated pigmentation. The second patient stated that her family physician had treated her for a typical attack of ivy poisoning, using a 5 per cent solution of ferric chloride in 50 per cent alcohol. The areas of pigmentation, which occurred rather extensively on the locations treated, failed to disappear when the skin was peeled, for which strong doses of ultraviolet rays were used. More radical measures were not undertaken because of the danger of permanent scar formation. The pigmentation was permanent. It is MacKee's impression that the resultant pigmentation occurs only in the areas that are eroded at the time the iron preparation is applied as a wet compress. The use of iron salts to be applied as a lotion, compress or wet dressing in any vesicular, bulous or exudative dermatoses should be discouraged, because the accident could occur equally well in the treatment of eruptions other than from poison ivy.

THE THERAPY OF THE COOK COUNTY HOSPITAL: NONTUBERCULOUS LUNG ABSCESS

Bernard Fantus, Chicago (*Journal A. M. A.*, May 16, 1936), in collaboration with Ralph Boerne Bettman, discusses the therapy of nontuberculous abscess of the lung. For the sake of therapy it is best to subdivide lung abscesses into the acute and chronic forms. An acute lung abscess is one of recent origin and, excepting for an occasionally well situated bronchial abscess that can be reached by the bronchoscope, it cannot be treated specifically. A chronic abscess, on the other hand, is one in which the pathologic changes have been fairly well established and, in this form, surgical treatment can often be successfully applied. These forms of lung abscess must be differentiated for purposes of treatment from tuberculous cavity, bronchiectatic cavity, carcinoma cavitation and abscess due to aspiration of foreign body. Prior to operations on the mouth and pharynx, the best possible oral hygiene should be employed. Disease of the teeth and the gums should be taken care of in a routine manner; and an antiseptic mouth wash, such as the antiseptic solution of the N. F. VI, should be used as a routine. Lung abscess is one of the few kinds of abscess in which "nature" should be given every possible chance for evacuating the pus before surgery is resorted to. To draw correct indications for details of treatment, differentiation must be made between acute lung abscess, chronic lung abscess and multiple lung abscess. Acute lung abscess is to be treated along symptomatic lines, for the great majority of acute lung abscesses heal without the necessity of surgical procedure; and surgery in the presence of an acute lung abscess has a prohibitively high mortality rate. Rest, an increase in resistance, bronchial drainage, the antagonization of the fetor of the sputum (by vapor inhalation, steam inhalation, taking creosote carbonate in ascending drop dosage, or by a mouth wash that is strongly flavored, e. g., the "N. F. dentifrice"), roentgen irradiations and collapse therapy are indicated. The indications in chronic lung abscess are surgical drainage (immediate or bronchoscopic) and supportive measures. If adhesions have not been naturally formed, because the inflammatory process is in the depths of the lung far from the visceral pleura or because of the presence of an exudate, or for any other reason, it becomes absolutely essential as the first step in external drainage to obliterate the pleural space at the site of proposed drainage by artificially producing adhesions.

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JUNE, 1936

EDITORIALS

DUDLEY STEELE CONLEY, M.D.

PRESIDENT-ELECT, MISSOURI STATE MEDICAL
ASSOCIATION, 1936-1937

Dr. Dudley Steele Conley, Columbia, was selected as President-Elect of the Missouri State Medical Association by the House of Delegates at the Columbia Session, April 13, 14 and 15. Dr. Conley will serve as President-Elect during this year and will be installed as President at the Cape Girardeau Session in 1937 during which year he will serve as President.

Dr. Conley was born in Columbia, January 26, 1878. He received his early education in Columbia and in 1899 received a B.L. degree from the University of Missouri.

He studied medicine at the College of Physicians and Surgeons of Columbia University, New York, and received his degree in medicine from that school in 1906. After an internship he began the practice of surgery in New York City and continued there until 1918. He was instructor in surgery at Columbia University from 1912 to 1918 and instructor in surgery at the Post-Graduate Medical School in New York from 1916 to 1918.

In 1919 Dr. Conley became professor of surgery in the University of Missouri, Columbia. He became Dean of the School of Medicine in 1933 which position he now holds. He is director of the University Hospitals and director of the surgical services in these hospitals.

Dr. Conley served as Major in the Medical Corps, United States Army, during the World War and was stationed at Hyeres, France, Base Hospital No. 99.

In addition to the Boone County Medical Society, the Missouri State Medical Association and the American Medical Association, Dr. Conley is a member of the Southern Medical



DUDLEY STEELE CONLEY, M.D.

Association, the Quiz Medical Society, the Mississippi Valley Medical Society and is a fellow of the American College of Surgeons. Dr. Conley served as Vice President of the Missouri State Medical Association in 1935.

Dr. Conley is an active practitioner, an instructor and an administrator and the members can be assured that again the House of Delegates has acted wisely in their selection of the Association's leader.

MATERNAL MORTALITY

Salutary benefits to practitioners everywhere follow a frank discussion of the difficulties and mistakes of practice. It was on this note that at the recent Columbia meeting the Committee on Maternal Welfare of the Missouri State Medical Association sponsored a dinner destined to become an annual feature at subsequent state conventions. The purpose of the dinner, as well as the other varied activities of the committee, is to reduce the appalling loss in parturient mothers. In this instance, Dr. Joseph L. Baer, Associate Clinical Professor of Obstetrics and Gynecology at Rush Medical College of the University of Chicago, served as inter-

locutor and commentator on case reports offered by various members of the profession. To judge from the comments of Professor Baer much of the difficulty encountered in the cases cited resulted from doing too much; he stressed the importance of noninterference, reiterated the age-old aphorism: do no harm. The committee is not to be satisfied with this dinner at which only relatively few members of the profession can be present. They are anxious to extend their services in every possible way. To that end they have edited a query column in *THE JOURNAL* during the last few months in which are answered questions on obstetrics proposed by practitioners throughout the state.

In addition to the methods cited this committee proposes a state-wide campaign to carry modern technical knowledge of obstetrics to the rural practitioner. Thoroughly in accord with their purpose the State Board of Health has added to its Division on Maternal and Child Welfare a full-time consulting obstetrician who will personally visit each county in the state, there to offer a kind of postgraduate instruction and to consult with local physicians over any problem that may be presented by individual patients. Further than this, the Committee proposes to obtain funds from the Social Security Administration for improvement in the care given the expectant mother. Through a variety of lay auxiliaries they seek to spread a feeling of appreciation for the services of the physician and to teach patients the importance of adequate and continued medical care from an early date of their pregnancy. In furtherance of their purpose of reducing maternal mortality this committee will collect careful statistics relating to the cause of each maternal death. Each physician will be invited to fill in a special questionnaire giving full information in regard to all deaths that occur under his observation. The cooperation of the profession to this end must be enlisted in order that the committee may be encouraged to continue their splendid efforts.

To quote Professor Baer, the pregnant woman must be taught that labor is merely one of a series of complex physiological processes; she must be made to understand that the early stages, as well as the culmination of this series of processes must be carefully watched by her obstetrician in order that complications may be forestalled. The family of the pregnant woman must be taught that labor is actually a potentially serious emergency procedure rarely demanding surgical management to save the life of mother or child; they must be made to realize that nothing other than the best medical care is fitting or proper for the wife and mother.

And finally the profession must be taught that the outcome of this series of complex physiological developments is dependent upon the judgment and the skill and the ability of the individual practitioner.

EPIPHYSEAL BONE STIMULATION FOLLOWING POLIOMYELITIS

Poliomyelitis is a rare disease. In this part of the country epidemic outbreaks are infrequent despite their perennial recurrence in the East. Nevertheless the pitiable cases of physical impairment which fill the orthopedic hospitals serve as a constant reminder of the disease and keep alive an intense interest in any method of treatment which promises a reasonable degree of relief from the dwarfing of the affected limb. Inasmuch as nearly half the persons who contract the disease are left with varying degrees of bone shortening and muscle paralysis the problem of treatment is always worthy of discussion.

A few years ago the orthopedic surgeon proposed muscle transplanting operations to give power to the lifeless extremity. Miraculous improvement resulted in many cases, the patient being given a fair degree of muscular power and control. Bone shortening remained. If it were not for this physical handicap which prevents all free action and enforces a life of relative idleness the problem would be less distressing. Too often, however, a feeling of mental inferiority follows with its depressing effect upon the normal life of the individual. The ingenious operation of bone lengthening was invented; it increased the functional ability of the cripple, did away with the necessity for lifts, special shoes and the like which could not help but serve as a constant reminder of disease.

More recently another method of attack upon the problem has been proposed by Drs. Harris and McDonald¹ of Toronto, Canada. These surgeons had observed, as have many others, that conditions of venous stasis in the region of an epiphysis of a child were associated with local increase in growth. Thrombophlebitis, arteriovenous fistulas, even long standing congestion due to inflammatory processes, all might be followed by overgrowth of one extremity. Harris and McDonald believe that the increased blood supply to the growth center is responsible for this condition. They reasoned that if they could produce a similar congestion of the cold, blue, anemic extremity of the child with infantile paralysis there should be reason to expect

1. Harris, R. I., and McDonald, J. L.: The Effect of Lumbar Sympathectomy Upon the Growth of Legs Paralyzed by Anterior Poliomyelitis. *J. Bone & Joint Surg.* 18:35 (January), 1936.

growth increment. They believe that such congestion in conjunction with the pull of normally acting muscles goes far toward the determination of normal growth. Obviously, these investigators began with animal investigation as the first step in proving their hypothesis. Unfortunately they could discover no change in the length of the bones of animals subjected to unilateral lumbar sympathectomy, an operation generally accepted as producing increased blood flow in the homolateral limb.

With children, however, gratifying results were obtained, better with lumbar sympathectomy than with ramisection. If the operation were performed early in life better results were obtained. As might be expected the degree of improvement obtained in their patients could be divided into three classifications: Those in whom the rate of growth in the affected extremity increased but did not keep pace with the rate of growth of the unaffected side thus producing increasing shortening; those in whom the rate of growth in the affected extremity became as rapid as in the unaffected limb thus producing a constant shortening; those in whom the rate of growth in the affected extremity became more rapid than that in the unaffected limb so that the two legs became more nearly the same length. By experience it was found that the degree of improvement was proportional to the degree of muscular involvement, thus reenforcing the author's conception of the part played by healthy muscle pull in producing growth.

In the five years elapsing since their first report Harris and McDonald have operated upon seventy patients. Of these they were able to reexamine forty-six from one to seven years after the operation. Sixty-three per cent of them showed either less shortening or the same amount of shortening as before operation. In the remaining 37 per cent the shortening was greater than before operation. The actual growth increment varied from one eighth of an inch to one inch. In some cases it was possible to dispense with lifts because there was only minimal tilting of the pelvis and the child could walk without a limp. Photographs on squared paper offer striking confirmation of their conclusions as to the value of the operation. It is important to note that in the cases not benefited, the increased circulation following ganglionectomy was not maintained.

Another observation is offered in their paper in support of their contention as to the value of the operation. Four patients upon whom they did a left lumbar sympathectomy for Hirschsprung's disease showed an overgrowth of from one fourth to one inch in the left leg.

It would be interesting to know whether the hyperemia produced by the Pavaex (passive vascular exerciser) apparatus, if continued over a long period of time, would produce a similar overgrowth in the paralyzed extremity of a poliomyelitic. In that case a certain amount of muscle pull might be anticipated as a result of the alternating changes in pressure which bring about increased blood flow in the part.

KANSAS CITY SESSION OF THE AMERICAN MEDICAL ASSOCIATION

Missouri fellows, and especially those in the Jackson County Medical Society, were happy when the American Medical Association accepted the invitation of Missouri to meet in Kansas City in 1936 and now are happy in a job well done. The Kansas City Session of the American Medical Association was successful as a scientific meeting, in executive affairs accomplished by the House of Delegates and in recreation. The only mar to the Session was the severe illness of the President-Elect, Dr. J. Tate Mason, Seattle, Washington, who was unable to attend the meeting.

The House of Delegates convened in the Muehlebach Hotel with practically all Delegates present at all sessions and many fellows were visitors during much of the time the House was in session. Missouri was represented by Dr. A. R. McComas, Surgeon; Dr. W. H. Breuer, St. James; Dr. W. M. West, Monett; Dr. James R. McVay, Kansas City, and Dr. Carl F. Vohs, St. Louis.

Dr. James S. McLester, Birmingham, presided, and in his address encouraged the profession in its fight against socialized medicine, as also did Dr. Mason in his address which was read by Dr. Brien King, Seattle.

Dr. J. H. J. Upham, Columbus, Ohio, was elected President-Elect. Dr. Upham received his medical degree from the Medical School of the University of Pennsylvania in 1894; interned at Johns Hopkins Hospital and studied further in Prague, Leipzig and Berlin. He began practice in Columbus in 1896. He held several professorships in the Starling-Ohio Medical College then in the Ohio State University College of Medicine and in 1927 became dean of the latter. Dr. Upham has been a member of the Ohio State Medical Board since 1913; has served as secretary, editor and president of the Ohio State Medical Association. He has served on the Judicial Council of the American Medical Association and for twelve years has been a member of the Board of Trustees becoming chairman of the Board in 1933.

Dr. Charles Gordon Heyd, New York, was

elected Vice President. Dr. Heyd received his degree from the University of Buffalo in 1909. For two years he was house surgeon at the New York Post-Graduate Hospital. He is now professor of surgery at the New York Post-Graduate School and Hospital and at the Post-Graduate Medical School and Hospital of Columbia University.

Dr. Olin West, Chicago, was reelected Secretary; Dr. Herman L. Kretschmer, Chicago, reelected Treasurer; Dr. Nathan B. Van Etten, New York, reelected Speaker of the House; Dr. Harrison H. Shoulders, Nashville, reelected Vice Speaker, and Dr. Thomas S. Cullen, Baltimore, reelected member of the Board of Trustees. Dr. Edward R. Cuniffe, New York, was appointed a member of the Judicial Council to fill the vacancy created by the death of Dr. Emmett P. North, St. Louis.

The Judicial Council in its report to the House stressed the importance of the services of the physician being kept entirely separate from any plans in regard to hospitalization. It was brought out in the House that the concentration of physicians in towns of over 10,000 was becoming more pronounced, the percentage now being 46.2. In 1906 this figure was 29.8. The indiscriminate forcing of vitamins was opposed in the report of the Council on Pharmacy and Chemistry.

The House approved a resolution that students be judged for admission to medical schools not only on academic standards but for "Character, personality, social fitness and motivations." Payment for medical service to WPA employees, supervision by the profession of administration of any occupational disease laws, health insurance proposals, restriction of the prescribing of certain drugs to physicians only, lien laws, workmen's compensation acts and group medical plans were covered in resolutions. A resolution promoting the Association membership of all interns was adopted. The disciplinary powers over members was extended from the county and state to the Judicial Council.

The Board of Trustees was asked to enlarge its studies of occupational diseases, particularly silicosis, to the end that uniform legislation be put into effect in all states to control these conditions. This resolution was introduced by the Missouri Delegates and referred to the Reference Committee on Hygiene and Public Health. The report of the reference committee and the resolution adopted follow:

After careful consideration the Committee is of the opinion that while the resolution, as introduced, was of value the meaning might be clarified and the purpose better served if it were presented in different form. After conference and agreement, therefore, with the

sponsors of the resolution, the Committee desires to present the following substitute resolution and to recommend its adoption.

WHEREAS, In recent years there has developed an increase in recognition of the seriousness of diseases arising from conditions to which workers are exposed from certain occupations, and

WHEREAS, The diagnosis of such diseases is possible only by physicians, and the correction of such conditions as would tend to eliminate the hazards can best be carried out under the guidance and administration of physicians, particularly physicians trained and experienced in industrial hygiene or public health, therefore be it

Resolved, That it be deemed essential that any active efforts by governmental agencies to study and to take measures tending to eliminate occupational diseases, should be carried out under the supervision of the city, state or federal departments of health in this country and that this Association do all within its power to assist in this endeavor, and be it further

Resolved, That the Board of Trustees of this Association continue and enlarge its study of industrial hygiene, occupational diseases, and particularly silicosis, to the end that uniform legislation be put into effect in all the states to control these conditions.

A resolution urging Congress to pass a pending measure for the release of helium at government costs for the treatment of asthma and related diseases was adopted by the House. A resolution directed toward making advertising conform to the same regulations applied to labels of drugs was passed. A committee for a survey of mental hospitals to work in conjunction with similar committees of other organizations was requested. The Board of Trustees was requested to appoint a committee for studying air conditioning.

A proposed plan for the rural resettlement administration to loan federal money to individuals to enable them to subscribe to stock in a hospital at Elk City, Oklahoma, called forth the decision to investigate the general policies of the Federal Government. The resolution as adopted follows:

WHEREAS, The reported plan for federal aid for this or any other hospital similarly situated, whether given directly or indirectly, under the guise of gifts or loans to individual stockholders or prospective stockholders, is contrary to public policy and to the interests of the medical profession; be it

Resolved, That the Board of Trustees be requested to investigate the existing situation immediately, not only with respect to the reported situation in Elk City, Oklahoma, but also with respect to the general policies of the federal government, and to take such action as it deems proper to protect the interests of the public and of the medical profession; and

Resolved, Further, if the Board of Trustees thinks it advisable that a copy of these resolutions be transmitted to the President, the president of the Senate, the speaker of the House of Representatives, the director of the budget and the under secretary of agriculture in charge of the rural resettlement administration.

The following members of the Missouri State Medical Association were elected to Affiliate

Fellowship in the American Medical Association: Dr. Lincoln C. Chenoweth and Dr. Samuel H. Miller, Joplin; Dr. Andrew L. Lewis, Sumner, and Dr. Herman D. Jerowitz, Kansas City.

Greetings from the British Medical Association were presented to the House by Lord Horder, London. The Canadian Medical Association extended an invitation to the American Medical Association to meet in Canada at a future date.

The Jackson County Medical Society was host to delegates and officers of the Association at a dinner at the Muehlebach Hotel on Monday evening.

Dr. J. Tate Mason, Seattle, was installed as President, *in absentia*, at the open session on Tuesday evening. This was the only session open to the public and few seats in the large arena of the auditorium were left unfilled. The crowd began to gather long before the doors were opened. The speakers were Dr. James S. McLester, Birmingham, President; Dr. Ross A. Woolsey, St. Louis, President, Missouri State Medical Association; Dr. Frank R. Teachenor, Kansas City, President, Jackson County Medical Society; Dr. Howard L. Snyder, Winfield, Kansas, President, Kansas Medical Society; Dr. Paul M. Krall, President, Wyandotte County (Kansas) Medical Society; Gov. Guy Park, Gov. Alfred M. Landon and Hon. Bryce B. Smith, Mayor of Kansas City. Applause and then a tribute of silence greeted the declaration of Dr. Mason as President of the American Medical Association.

A reception was given for the new President-Elect, Dr. J. H. J. Upham, Columbus, Ohio, Thursday evening and many of the physicians and their wives paid tribute to the new officers.

Two hundred and nine fellows competed on two of Kansas City's golf courses on Monday and trophies were awarded at the dinner that evening at the Mission Hills Country Club.

One hundred seventy scientific exhibits covered practically every phase of medical science. The American Medical Association gold medal was awarded to Dr. Rudolph Schindler, Chicago, for his gastroscope, a device composed of rubber tubing and a set of forty-six mirrors which permits vision of the human stomach. The second award went to Drs. Charles B. Higgins, W. J. Noonan and B. H. Blockstrom, Chicago, for their exhibit showing that heat is responsible for bone marrow forming blood. Drs. Wendell G. Scott and Sherwood Moore, St. Louis, received a certificate of merit for their exhibit illustrating the clinical and physiologic value of kymography in diseases of the heart and chest. More than 450 physicians registered with the Missouri State Committee

on Maternal Welfare scientific exhibit to receive literature on maternal and child welfare.

Commercial exhibits of more than two hundred companies covered the entire first floor of the large auditorium which was constantly crowded with physicians who found much of educational value there.

The Section meetings were well attended and despite the auditorium not being completed thus necessitating some of the sections meeting in other places, section chairmen expressed themselves as well satisfied with the accommodations furnished them. Many advances and new theories were placed before the fellows in the various sections.

The registration was large and while there were probably fewer guests of fellows than have often attended sessions, Kansas City's accommodations were taxed. Some hotels even converted smaller meeting rooms into "wards." However, the general sentiment seemed to be that Kansas City physicians and citizens had done an excellent job of extending hospitality to her guests. That Kansas City was interested in the meeting was indicated by the amount of space given the meeting in the metropolitan papers, one paper devoting from ten to twenty columns a day to the meeting for over a week.

Missouri fellows who were elected officers of sections are: Dr. Ralph H. Major, Kansas City, vice chairman, Section on Practice of Medicine; Dr. John Green, St. Louis, member of executive committee, Section on Ophthalmology; Dr. B. Landis Elliott, Kansas City, vice chairman, Section on Nervous and Mental Diseases; Dr. Chas. C. Dennie, Kansas City, vice chairman, Section on Dermatology and Syphilology; Dr. Edward H. Skinner, Kansas City, delegate, Section on Radiology.

Dr. Olin West, Secretary, reported that there are now more than 102,000 members of the American Medical Association and on March 1, 1936, there were 62,997 fellows.

Atlantic City was selected as the place of meeting for the 1937 session.

JUNIOR MEMBERSHIP

Medical schools are constantly becoming more proficient in preparing young men to enter the practice of medicine. Teaching staffs are being more carefully selected, clinical opportunities for the student are being enlarged, selection of students is being more carefully checked each year. After graduation interns are selected and given positions exactly.

There is still one important subject that is not taught to the student and until recently has not been placed consistently before the intern;

i.e., the importance of organized medicine. The student is taught something of medical ethics, on which organized medicine is based, but he is not acquainted with the power of organized medicine. He is not taught the many small benefits to be gained by affiliation with his medical society nor does he realize the force of which he becomes a part in legislation, in maintaining the practice of medicine on a high standard and free from quackery, and of spreading the opportunities of continued study to all practitioners. This part of medical education is left to the practitioner who is and has been in active practice.

No better proof that the men in active practice are carrying out this part of the curriculum could be had than the number of junior members being added to the rolls of organized medicine. Since January 1, 1936, the St. Louis Medical Society has enrolled twenty-eight junior members, seventeen of them interns at the time they became members. There are now eighteen applications for junior membership before the membership committee of St. Louis Medical Society.

The staff of DePaul Hospital recently presented junior memberships to its interns and for this progressive act received the acclaim of organized medicine. Since that time St. Anthony's Hospital has made its interns junior members. This is one of the most gratifying of recent trends in organized medicine and it is hoped that other hospitals will do likewise. It is evident that staffs of other hospitals are encouraging their interns to become members as many of the new junior members are interns from other hospitals.

REGISTRATION UNDER HARRISON NARCOTIC ACT

The Commissioner of Internal Revenue has for many years been lenient in enforcing the criminal penalties provided by the Harrison Narcotic Act for negligence of physicians in registering. Recently physicians who have been tardy in reregistration have been given the alternative of paying substantial sums by way of compromise in lieu of the penalties for their offenses or accepting criminal prosecution with resultant publicity and liability to fines of indefinite amounts and possibly imprisonment. The commissioner could have instituted criminal prosecutions without allowing the offending physicians any choice in the matter. The Act stipulates that every physician registered under the Harrison Act must reregister on or before July 1 with the collector of internal revenue of each district in which he maintains an office or a place for the treatment of patients. Failure

to reregister within the time allowed by law adds a penalty of 25 per cent to the annual narcotic tax payable at the time of registration and in addition makes the physician in default liable to a fine not exceeding \$2000 or to imprisonment for not exceeding five years or to both.

PHYSICIANS ASKED TO COOPERATE IN PUBLIC HEALTH SURVEY

An extensive canvass of chronic and disabling illnesses was conducted during the fall and winter by the United States Public Health Service. The survey was limited to specific localities in nineteen states, Missouri being one of these. When the survey was initiated it was realized that great value would accrue if supplementary facts could be obtained from physicians in cases of medically attended illnesses. Accordingly when medical attendance was reported permission to secure additional data from the physician was requested. In all cases families were assured that the information would be regarded as confidential and would be used for purposes of statistical compilation only.

Appropriate forms are now going to attending physicians named by informants and the United States Public Health Service is asking the cooperation of the medical profession in this important phase of the study. A fee of 25 cents will be paid for each blank returned. The staff of the survey believes that not only valuable data will be added in this way but that the scientific accuracy of the survey will be assured.

NEWS NOTES

Dr. E. Lee Dorsett, St. Louis, was a guest of the Arkansas State Medical Association, April 28, at Hot Springs National Park, and delivered addresses on "Internal Podalic Version" and "Eclampsia."

Dr. Morris Fishbein, Chicago, Editor of the *Journal of the American Medical Association*, spoke at the Liberal Forum of the Y. M. H. A., St. Louis, May 17 on "Medicine and the Changing Social Order."

Out of approximately six million persons on relief in this country there are only about fifty physicians and surgeons, according to a survey made recently by the Kny-Scheerer Corporation, Long Island City, New York. The survey disclosed that there are one thousand lawyers, three thousand ministers and religious workers and more than 20,000 teachers on relief rolls.

Dr. George K. Sims, Bolivar, was a guest of the Crawford County (Kansas) Medical Society at Girard, Kansas, on April 16, and discussed "Forceps: Their Indications, Contraindications, Uses and Abuses."

Dr. John Green, St. Louis, chairman of the Section on Ophthalmology of the American Medical Association at the Kansas City Session, was host to about two hundred members of the section at a dinner at the Hotel Kansas Citian, Kansas City, on May 14.

The Rev. Alphonse M. Schwitalla, S. J., St. Louis, Dean of the School of Medicine of St. Louis University, was elected president of the North Central Association of Colleges and Secondary Schools at a meeting in Chicago, April 25.

Dr. O. Jason Dixon, Kansas City, was a guest of the Nebraska State Academy of Ophthalmology and Otolaryngology at Lincoln, April 6, and presented an address on "The Diagnosis and Management of Some of the Complications of Mastoiditis."

Dr. Warren H. Cole and Dr. Nathan A. Womack, St. Louis, will deliver an address at the annual meeting of the American Association for the Study of Goiter which will convene in Chicago, June 8, 9 and 10. Their subject will be "The Thyroid Gland in Hypoglycemia."

The Leslie Dana Gold Medal for "outstanding achievements in the prevention of blindness and the conservation of vision" was awarded to Dr. John M. Wheeler, New York, at a dinner in St. Louis, May 9. The recipient of the award is selected by the National Society for the Prevention of Blindness in cooperation with the St. Louis Society for the Blind. The award is made each year.

The annual clinical conference of the St. Louis Clinics held April 27 to May 2 was attended by 126 physicians from sixteen states, Missouri, Illinois, North Dakota, Iowa, Nebraska, Michigan, Colorado, Texas, Indiana, Florida, Kentucky, Kansas, Arkansas, Oklahoma, Wisconsin and Alabama. A joint session with the St. Louis Medical Society followed by a smoker and a dinner under the auspices of the Woman's Auxiliary of the St. Louis Medical Society were entertainments furnished during the conference.

There are a number of vacancies for positions as camp medical officer with the Civilian Conservation Corps in the Seventh Corps Area, according to the Surgeon of that area. These positions are open to Medical Corps Reserve officers or to qualified applicants for appointment as such. The service should be of special interest to men completing their internships. Letters of inquiry should be addressed to the Surgeon, Seventh Corps Area, Omaha, Nebraska.

Mr. J. W. Becker, St. Louis, executive secretary of the Missouri Tuberculosis Association, died in St. John's Hospital, St. Louis, May 2. He became ill while attending the annual meeting of the National Tuberculosis Association at New Orleans. He had been executive secretary of the Missouri Tuberculosis Association since August, 1926. Mr. Becker served as president of the Mississippi Valley Conference on Tuberculosis in 1930 and as chairman of the program committee of the conference for the last seven years. At the time of his death he was a member of the Advisory Committee to the State Board of Health and the Rehabilitation Committee of the St. Louis Chapter of the American Red Cross.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Cheplin Biological Laboratories, Inc.
Mercury Salicylate, 1 Grain (0.065 Gm.)
Suspended in Oil, 1 cc.
National Drug Co.
Refined Tetanus Toxoid (Alum Precipitated)
Scientific Sugars Co.
Kinney's Cod Liver Oil Concentrate Capsules
Kinney's Cod Liver Oil Concentrate Liquid
G. D. Searle & Co.
Ampoules Bismuth Sodium Tartrate—Searle,
3 per cent, 2 cc.
Solution Bismuth Sodium Tartrate—Searle,
3 per cent, 66 cc. vial.
Sharp & Dohme, Inc.
Antipneumococcic Serum Types I and II
United States Standard Products Co.
Bismuth Calicylate in Oil
Scarlet Fever Streptococcus Toxin for the
Dick Test
Winthrop Chemical Co., Inc.
Granules Protargol Compound

The following members responded to invitations of the Postgraduate Committee of the

State Association to deliver addresses at recent meetings of the component county medical societies:

Dr. M. Pinson Neal and Dr. Dudley A. Robnett, Columbia, were guests of the Randolph-Monroe County Medical Society at Moberly on March 10. Dr. Neal spoke on "Pneumonia" and Dr. Robnett on "Cancer." Dr. Neal was a guest of the Saline County Medical Society at Marshall on April 7, and presented an address on "Treatment of Pneumonia."

The Cole County Medical Society had as its guest at Jefferson City on March 11, Dr. Ralph A. Kinsella, St. Louis.

The Buchanan County Medical Society had as guests at its annual spring clinics at St. Joseph on March 23, 24 and 25, Drs. R. M. Klemme, W. H. Olmsted, Meyer Wiener and Duff S. Allen, St. Louis. Dr. Klemme spoke on "Diagnosis and Treatment of Intracranial Lesions"; Dr. Olmsted on "Present Day Diabetic Diets"; Dr. Wiener on "Eye Findings and Their Interpretation in Intracranial Lesions," and Dr. Allen on "The Effect of Denervation of the Adrenal Gland."

Dr. D. D. Stofer, Kansas City, was the guest of the Pettis County Medical Society at Sedalia on March 25 and spoke on "Gland Therapy."

The South Central Counties Medical Society had as its guests at Willow Springs on April 2, Drs. Sinclair Luton and Lee D. Cady, St. Louis. Dr. Luton spoke on "Chronic Heart Disease" and Dr. Cady discussed "Chronic Pseudo Heart Disease, Its Diagnosis and Treatment."

Dr. Ross A. Woolsey, St. Louis, was the guest of the Marion-Ralls County Medical Society at Hannibal on April 3.

On April 10 the Adair-Schuyler County Medical Society had as its guests Dr. G. Wilse Robinson, Kansas City, and Dr. Emmett Hctor, Farmington. "Mental Health" was discussed.

Dr. A. B. Jones, St. Louis, was a guest of the Greene County Medical Society at Springfield, April 24, and spoke on "Neurology in Relation to General Practice."

Books for Leisure Moments

The practicing physician is sometimes inclined to quarrel with insurance companies over the rejection of applicants for insurance, applicants known to the physician over a period of years and honestly considered by him as good "risks." But the companies remain adamant, unswayed by the protests of the family physician; their tremendous file of statistical data proves conclusively that the risk of early death is greater than is consistent with their obligation to other policyholders. For example, the death rate in persons with functional heart murmurs is higher than in all persons be-

longing to the same age group even recognizing the fact that in some cases an organic murmur is mistakenly diagnosed as functional. In persons with an intermittent or irregular pulse the mortality is much higher than might have been anticipated. Dr. Louis I. Dublin, vice president of the Metropolitan Life Insurance Company, and his assistant, Alfred J. Lotka, take the statistical experience of the life insurance companies as the basis for "The Length of Life; A Study of the Life Table" (Ronald Press, New York).

The authors make the dry statistics with which they deal alive and interesting. They point out that the increase in length of life which the last half century has witnessed has been due to the control of communicable diseases; that in those instances in which the individuals of an earlier generation escaped the ravage of epidemics such as are dealt with by Dr. Ralph H. Major (*Disease and Destiny*) they lived to a ripe old age, thoroughly in keeping with the longevity of today. From the numerous tables and charts one may determine his mathematical chance of dying from one of a host of diseases. Conversely, from careful consideration of the textual matter, one may learn how to minimize the chance of dying or of suffering illness. For example, it is obvious that hard physical work will not make for longevity in a person with heart disease. Agricultural workers have the lowest mortality rate, only slightly less than that for persons in the professions. Physicians have a good outlook for life provided that they escape the respiratory infections to which they are frequently exposed by the very nature of their work. Even army officers exposed to all the hazards of their particular occupation have a good expectation of life. One is inclined to guess in part that the regularity of their lives and the excellent habits which they are forced to develop is able to overcome the risk of exposure to pestilential disease in out of the way stations as well as the direct loss of life brought about by enemy bullets.

The authors anticipate an improvement in life expectancy by the application of current knowledge so that shortly only twenty-five out of each thousand infants will die before the first birthday instead of the now prevalent sixty. One fourth of the population will be dead at age 63 instead of at age 25 as in 1901 and age 49 as in 1930. "Science can do a great deal, but it has its limitations. It cannot grant immortality to man. The aging process which ultimately makes itself felt in some of the symptoms characteristic of the degenerative diseases, is in a sense a normal phenomenon. The human body, like all the more highly organized living structures, is apparently designed to serve only for a limited period. . . . If these diseases of later life cannot be entirely prevented, at least their onset can probably in many cases be delayed and their course retarded."

When these technical advances have been achieved the whole form of age distribution in the population will have changed, a factor of tremendous importance in view of political propositions which are now being made for the support of older persons by the state. Even retail merchants are already taking advantage of this change in the relative age distribution of the population in planning sales campaigns and determining the space to be given to the exhibition of various articles in their stores. Real estate values, the authors anticipate, will soon be stationary; at least there will be no new subdivisions to be opened up after the probable maximum population of 154 million is reached in this country about the year 2000. Whether or not there will be the desirable changes in social and living standards which the authors expect is too problematical to be more than mentioned here. They anticipate that the character of our government will change in view of

the fact that older heads will soon dominate the national scene; perhaps it is to be regretted that the exuberance of youth which has been responsible for much of the growth of America will no longer find a place in the political and economic plans of the United States of tomorrow.

The volume is filled with a variety of statistical evidence. Some of it will be of interest only to demographers or sociologists. But there is much in it that will prove of interest to any person even casually concerned with the life and death of the citizens of the country. For the reader interested in the application of life tables to his own particular problems indications are given of the method by which this may be accomplished. For the physician there will be much material upon which to reflect as he strives to lower the death rate and increase the well-being of his patients.

B. Y. G.

The vagaries of the human mind determine the relation of the individual to society. The recluse as well as the diplomat or the social butterfly have their parts to play in forming the cosmopolitan world of today. Fortunately, most of them exert comparatively little influence on the course of civilization. It becomes doubly fascinating therefore to consider the role that disease has played in molding the course of human events. That the epidemics sweeping over Europe and America contributed much to the political development of empires cannot be gainsaid. If bubonic plague had not destroyed London in the seventeenth century one wonders what the course of English history might have been, since England probably would have remained a Catholic country. Indeed, there might never have been a Reformation had not the clergy been wiped out by the epidemic to have their places taken by immature and dissolute men and boys whose misdeeds conspired to bring the church of Rome into disrepute. It is such material that Dr. Ralph H. Major chooses as his theme in "Disease and Destiny" (Appleton-Century). He follows the course of the major epidemic diseases, tracing their influence on the cultural, economic and political life of nations and peoples. The custom of the King's Touch to cure scrofula is not without amusement as one reflects upon the superstitious ignorance of the peasantry of that day. Yet one finds like credulous persons today flocking to faith cures of any kind.

If Friedrich Nietzsche had not acquired syphilis and developed paresis there is reason to believe that he would never have written "Thus Spoke Zarathustra." And if he had never written this book and had never attracted von Bernhardt, the apostle of militarism, as pupil perhaps there would have been no Great European War. The German House of Hanover contributed to England her great queen, Victoria, contributed to Russia Queen Alice, Wife of Nicholas II, the last of the Czars and to Spain Queen Victoria, wife of Alfonso, the last of the Spanish kings. If the Hanoverian family had not carried the stigma of hemophilia modern European history would probably be vastly different. Certainly the Czarina would never have invited the infidel Rasputin to the Russian Court and there protected him against all abuse, only to have him betray her and her whole family, almost single-handed to overthrow the Russian Monarchy. If this same family had not carried the disease into Spain the fatal affliction of the Prince of the Asturias there is reason to believe that Alfonso would never have abdicated the throne. Of such stuff is Major's book woven; it provides material for contemplation of the large part that disease has played in shaping the course of world events. In this connection one cannot help

wondering what effect, if any, present day malnutrition, increasingly widespread, may have on the political events of the next few years.

B. Y. G.

Occasionally patients ask the physician to recommend a book that they may read in order to get some smattering of medical knowledge. It is frequently difficult to recommend such a book; oftentimes one fears that the little knowledge gained will prove to be a very dangerous thing. "Bewildered Patient" (Hale, Cushman & Flint) by Dr. Marian Staats Newcomer may be safely advised. It is a chatty survey of much of the medical field. It does not attempt to usurp the place of the physician. For example, it suggests an excellent retort for the woman who derides obstetrical care and boasts of being mother to a large family of children brought by midwives or by physicians called at the last moment. The author advises that the correct answer to such a statement is "that woman was a very lucky woman." Throughout the book Dr. Newcomer insists that the physician is the one to treat illness even though the family may have an understanding of the nature of the disease and may know little household measures which may serve to ease the patient's suffering.

B. Y. G.

OBITUARY

EMMETT P. NORTH, M.D.

Dr. Emmett P. North died at St. John's Hospital, St. Louis, December 28, 1935, of cerebral arterial occlusion. He was the son of Dr. Eugene B. North and Mary Sale Pipkin North. Born and reared at Labadie, Missouri, he later received his education in arts at Central College, Fayette, Missouri. After his graduation in medicine from the Beaumont Medical College in 1900 he served for the next several years in the St. Louis City Hospital, Missouri Pacific Hospital and the St. Louis South Side Dispensary. After study abroad for two years he became an associate in ophthalmology at St. John's Clinic and in 1933 assistant professor of the same department in St. Louis University.

Many honors in organized medicine and public health work came to him. He was president of the St. Louis Medical Society in 1921 and of the Missouri State Medical Association in 1925. From 1927 to 1934 he was a member of the Council on Education and Hospitals of the American Medical Association and in 1934 he became a member of its Judicial Council. For many years he served as delegate to the American Medical Association.

In public works he was President of the Missouri State Board of Health from 1917 to 1925. He was again appointed to the same office in 1933 which appointment ended in 1935. Many other honors were bestowed upon him in recognition of his ability, not the least of which was the presidency of the Missouri Pacific Railway Surgeons Association.

To summarize his activities and accomplishments one need go no farther than his intense practicality with a concealed but ever present rigid idealism. He knew men and their ways and he used these for the general good. His objective in public health measures was chartered for the benefit of the afflicted. His problem was to effect a working plan for its fulfillment. As attest was the establishment of the trachoma hospital at Rolla, by State control and jointly with the aid of the U. S. Public Health Service. Policy and method to him were formative but principles were static.

In his prolonged official connections with organized



EMMETT P. NORTH, M.D.

medicine he was class conscious of the physician whose position in the community could not be compromised. In medical education in Missouri he gave impetus to the movement leading to the eradication of the undesirable elements in this highly ordained field.

To the many he will be known and best remembered as an oculist. His devotion to his daily professional tasks and his sympathetic attitude, made a successful working combination. This was buttressed by a sound fundamental professional knowledge linked with a keen clinical insight, a like attainment not within the reach of all. His counsel and advice in this field will be missed by many as will his love and loyalty by his family and numerous friends.—C. W. T. in the *Weekly Bulletin* of the St. Louis Medical Society.

WILLIAM HARRISON MALLORY, M.D.

Dr. William H. Mallory, Joplin, a graduate of the Medico-Chirurgical College of Kansas City, Kansas City, Missouri, 1905, died at the Freeman Hospital, March 15, aged 57. A throat infection with cardiac failure followed the extraction of an infected tooth and complicating pneumonia proved fatal.

Dr. Mallory was born at Clinton. He attended the Lowry City High School. After his medical work at the Medico-Chirurgical College he took postgraduate work in the Polyclinic Hospital, New York City. He practiced medicine in Joplin for thirty years and was recognized as one of the outstanding anesthetists in the section. He was a member of the medical staffs of Freeman and St. John's hospitals being a charter member of the former staff and its secretary-treasurer in 1928. He was a member of the Jasper County Medical Society and was on the national committee of the Anaesthesia Society for the Prevention of Asphyxial Death.

Dr. Mallory was a member of the Joplin lodge No. 335, A. F. & A. M., the Scottish Rite and York Rite Masonic bodies, Abou Ben Adhem Shrine of Springfield and the Joplin lodge of the Benevolent and Protective Order of Elks.

Surviving are his widow, Mrs. Edith G. Mallory, a daughter, two sisters and a brother.

AUSTIN McMICHAEL, M.D.

Dr. Austin McMichael, Rock Port, a graduate of Washington University School of Medicine, 1879, died at the Missouri Methodist Hospital, St. Joseph, on April 7, aged 81. He had been unable to practice during much of the last winter because of poor health.

Dr. McMichael was born in Nova Scotia. His father, Robert McMichael, was a native of Scotland and his mother was a native of Nova Scotia. The family moved to Atchison County when the son was but 2 years old.

He was truly a self-made man having started for himself when he was 14. He worked at whatever he could find to do. After attending the district schools he went to high school at Brownville, Nebraska, and the Rock Port Seminary. After completing his medical work he began his practice in Rock Port where he remained in active work until poor health forced him from it.

Dr. McMichael was active in his Society. He was secretary-treasurer of the Atchison County Medical Society for many years and was Councilor of the 1st Councilor District in 1923. He was elected an honor member in 1933. He was known and respected throughout the state by members of his profession. Few citizens in his locality were so well known and revered, not only because of his medical practice but because he was active in business and civic affairs. He was always ready to take part in a public movement but was always cautious and his counsel was often sought.

He is survived by a sister, a half sister and a half brother.

JOHN WESLEY HOLLIDAY, M.D.

Dr. J. W. Holliday, Tarkio, a graduate of the College of Physicians and Surgeons, Keokuk, Iowa, 1879, died in the Missouri Methodist Hospital, St. Joseph, March 14, aged 87.

Dr. Holliday was born in Monroe County, Iowa. He attended an academy in Monroe County and taught school for five years in Wayne County, Iowa. After completing his medical course he began practice in Sullivan County, Missouri. After some years of practice he took postgraduate work in Jefferson Medical College, Philadelphia. He practiced for several years in Blanchard, Iowa, during which time he was surgeon for the Wabash Railroad.

He moved to Tarkio in 1892 and remained there until his death. He had a large practice in Tarkio and the surrounding community. He retired from practice several years ago but many of his patients continued to go to his home for advice. He was city physician of Tarkio for seven years.

For two terms Dr. Holliday served as mayor of Tarkio and for two years was a member of the city council. In 1924 he was elected state representative and was reelected in 1926.

Dr. Holliday was ever a loyal member of the Atchison County Medical Society and was elected an honor member in 1933.

He is survived by a daughter, two sons and two grandchildren.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1936

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 19, 1935.
Montgomery County Medical Society, January 7, 1936.
Ste. Genevieve County Medical Society, January 8, 1936.
Camden County Medical Society, January 9, 1936.
Dent County Medical Society, January 13, 1936.
Perry County Medical Society, January 17, 1936.
Webster County Medical Society, February 4, 1936.
Moniteau County Medical Society, February 29, 1936.
Benton County Medical Society, April 6, 1936.
Phelps-Crawford County Medical Society, April 6, 1936.
Jefferson County Medical Society, April 20, 1936.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society was host to the members of the Clinical Society and their guests on March 25 at the Hotel Robidoux.

Immediately following a banquet the meeting was called to order by the president, Dr. J. M. Allaman, St. Joseph. "Professor" Denny Reno entertained with some clever demonstrations of prestidigitation.

Dr. C. A. Good, St. Joseph, presented Dr. Wm. H. Olmsted, St. Louis, who spoke on "Physiology of Bulky Foods in the Treatment of Constipation."

Dr. Roland M. Klemme, St. Louis, who spoke on "Diagnosis and Accurate Differential Section in the Treatment of Trigeminal Neuralgia," was introduced by Dr. F. G. Thompson, St. Joseph.

The closing speaker of the evening, Dr. Duff Allen, St. Louis, who spoke on "Some Newer Aspects in Surgery of the Thyroid," was presented by Dr. John I. Byrne, St. Joseph.

The paper prepared by Dr. Meyer Wiener, St. Louis, entitled "Eye Findings and Their Interpretation in Intra-Cranial Lesions," was read during the afternoon session by Dr. Allen. Dr. Wiener was unable to appear personally because of illness.

The Society appreciated the cooperation of the State Medical Association and was deeply grateful to the Association for sending such competent and interesting speakers.

Meeting of April 1

The Society was called to order at the Missouri Methodist Hospital at 8:10 p. m. by the president, Dr. J. M. Allaman.

Dr. Herbert J. Rinkel, Kansas City, spoke on "The

Diagnosis of Food Allergy." The essayist gave a practical discussion of the problem of the intractable case of allergy. His discussion was interesting and well received.

The following communications were read: Acknowledgment by Mrs. Gleaves of the floral wreath sent at the death of Dr. O. G. Gleaves; a letter from Dr. E. Lee Miller, Kansas City, President of the Missouri State Medical Association, giving details of the 79th Annual Session of the Association; a letter from the American Association on Mental Deficiency.

The applications of Drs. Kelley, Roundy and Mullinax for active membership and Dr. Davis for provisional membership were read and approved unanimously.

EARL WHITSELL, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met January 13 at 8 p. m. at the Colonial Tavern on Highway 61. Dr. Glenn J. Tygett, Cape Girardeau, presided. The following were present: Drs. D. H. Hope, C. A. W. Zimmermann, N. F. Chostner, H. V. Ashley, H. L. Cunningham, E. H. G. Wilson, R. A. Ritter, P. B. Nussbaum, J. H. Cochran, O. L. Seabaugh and M. H. Shelby, Cape Girardeau, and D. I. L. Seabaugh, Jackson. Dr. E. J. Nienstedt, Blodgett, and Mr. E. H. Bartelsmeyer, St. Louis, were present.

The application of Dr. John D. Porterfield, Cape Girardeau, was presented and referred to the board of censors to be reported upon at the next meeting.

Dr. H. L. Cunningham suggested that inasmuch as several new members had been taken into the Society recently he thought it wise that they be informed of the rulings and customs along certain lines of procedure. He also thought that the older members might have their minds refreshed along the lines of fees, examinations, etc. A free discussion ensued and upon motion of Dr. J. H. Cochran, seconded by Dr. C. A. W. Zimmermann, the Society voted that the chair appoint a committee consisting of five members, three from Cape Girardeau and two from Jackson, to revise the fee bill and submit it to the Society for approval.

Mr. Bartelsmeyer discussed the Cape Girardeau County Medical Society entertaining the Annual Session in 1937. His impression was that this could be done nicely and should be done inasmuch as the Association had never met in Cape Girardeau and it would be of mutual benefit to all concerned. He felt the city had ample hotel accommodations and the other necessary facilities.

A program committee consisting of Drs. O. L. Seabaugh, J. H. Cochran and M. H. Shelby was appointed by the president.

Meeting of January 29

The Society met in a called meeting at the Colonial Tavern. The meeting was called to discuss the fee bill as submitted by the committee.

Dr. Glenn J. Tygett, Cape Girardeau, presided and the following were present: Drs. P. B. Nussbaum, John St. Avit, E. H. G. Wilson, O. L. Seabaugh, H. L. Cunningham, C. A. W. Zimmermann, G. B. Schulz, J. H. Cochran, M. H. Shelby, H. V. Ashley, N. F. Chostner, D. H. Hope and R. A. Ritter, Cape Girardeau, and D. I. L. Seabaugh, Rusby Seabaugh and D. G. Seibert, Jackson.

On motion of Dr. J. H. Cochran, seconded by Dr. D. I. L. Seabaugh, the revised fee schedule was adopted.

Meeting of February 10

The Society met at the Colonial Tavern for a dinner meeting. The following members and guests were present: Dr. B. W. Hays, D. I. L. Seabaugh and Rusby Seabaugh, Jackson; H. V. Ashley, N. F. Chostner, J. H. Cochran, H. L. Cunningham, A. E. Dalton, A. F. Juden, D. H. Hope, O. L. Seabaugh, R. A. Ritter, P. B. Nussbaum, John D. Porterfield, C. A. W. Zimmermann, E. H. G. Wilson, G. J. Tygett, John St. Avit, M. H. Shelby, G. B. Schulz, Pres. Parker and Dr. Cruse, of the State Teachers' College, Mr. T. J. McGinty, Cape Girardeau; Drs. D. A. Hoxie, F. L. Kneibert, J. Lee Harwell, J. Lester Harwell, Poplar Bluff; J. J. Bredall, Perryville; E. E. Higdon, Fredericktown; Edgard Critis, Sedgewickville; G. T. Doris and R. E. Lee, Illmo; H. S. Winters, Oran; J. B. Luten, Caruthersville; E. J. Nienstedt, Blodgett; S. E. Mitchell, Malden, W. R. Limbaugh, Hayti, and Asa Barnes, Dexter. Dr. M. P. Ravenel, and Dr. M. Pinson Neal, Columbia, were guest speakers.

Dr. M. P. Ravenel, Columbia, presented an address on "The Social Security Act in Relation to the Physician."

Dr. M. Pinson Neal, Columbia, spoke on "The Leukocyte Counts and Their Interpretation." Interesting discussions followed and all were enthusiastic in regard to the practical benefits derived from these addresses.

Meeting of March 9

The Society met March 9 at the Colonial Tavern. The following were present: Drs. Rusby Seabaugh, B. W. Hays and A. M. Estes, Jackson; J. H. Cochran, C. A. W. Zimmermann, J. J. Drace, John St. Avit, H. L. Cunningham, G. B. Schulz, D. H. Hope, O. L. Seabaugh, M. H. Shelby and N. F. Chostner, Cape Girardeau.

The Annual Session which will probably be held in Cape Girardeau in 1937 was discussed.

Because of the lateness of the hour the scientific program was dispensed with and the meeting adjourned.

M. H. SHELBY, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society was called to order at 8 p. m. April 7 with Dr. Paul Walker, Joplin, presiding. Seventeen members and two visitors, Dr. H. E. Marchbanks, Pittsburg, Kansas, and Dr. W. O. Coleman, Asbury, were present.

Dr. W. O. Coleman, Asbury, was introduced by Dr. R. M. James, Joplin. Dr. Coleman informed the Society that a man by the name of Stark, formerly of Jasper, is now located at Opolis, Kansas, and is operating a hospital and posing as a physician. A motion was made and passed that Mr. Charles Warden, prosecuting attorney of Jasper County be called and asked to appear before the Society and give them any information he might have concerning Stark. Mr. Warden was called and said he would appear.

Dr. J. E. Douglass, Webb City, presented a paper on "Calcium Deposits in the Lungs."

Mr. Warden spoke before the Society saying that Mr. Stark had been arrested on two charges while in Jasper and had been fined \$50 on one charge and had received a promise that he would not be prosecuted further if he would cease his activities. Stark told Mr. Warden that he was a regularly licensed physician and had been practicing in Kansas City where he was framed by some gangsters because of refusal to

work with them. He was charged with performing an abortion and his license was revoked. However, he was practicing in Jasper with that knowledge, stating that he was up for reinstatement in the near future. In response to an inquiry the State Board said that they had never issued a license to such a person and Stark admitted later that his story was entirely false. Mr. Warden took names of several persons who had been treated by Stark and said that he would investigate the matter and bring charges against Stark. It was the feeling of the Society that something should be done, that he should not be allowed to go any further without definite action. This thought was conveyed to Mr. Warden and he promised that he would take action against Stark in the near future.

J. W. HARDY, M.D., Secretary.

SOUTH CENTRAL COUNTIES MEDICAL SOCIETY

The South Central Counties Medical Society met at the Horton Hotel in Willow Springs, April 2. The following were present: Drs. J. C. B. Davis, Willow Springs; J. W. Bingham, E. C. Bohrer and P. D. Gum, West Plains; A. C. Ames, R. W. Denney and R. A. Ryan, Mountain Grove; T. W. Cotton, Van Buren; Leslie Randall and H. L. Reed, Licking, and L. M. Edens, Cabool; Deborah Doan and her secretary, Miss Lyda Carney, Bakersfield; Sinclair Luton and Lee D. Cady, St. Louis; Mr. David E. Hailman, Regional Supervisor, Mr. Walter Erb, State Supervisor, and Mr. George Dames, Local Supervisor, United States Public Health Service.

The meeting was called to order after lunch by Dr. R. A. Ryan, Mountain Grove, vice president, in the absence of the president, Dr. A. H. Thornburgh, West Plains.

Mr. David E. Hailman made a short talk outlining the survey of health conditions being made by the Government and a vote of approval and cooperation was passed by the Society.

Dr. Sinclair Luton, St. Louis, spoke on "Chronic Organic Heart Disease," and Dr. Lee D. Cady, St. Louis, spoke on "Chronic Pseudo or Functional Heart Disease." They brought out that much that is called heart disease is really not heart disease at all and that when the heart is really diseased it is not always for the patient's best interest that he be told the real condition; also that in functional conditions it is not wise to ignore or treat as purely imaginary but to try and relieve the patient's fear of danger as well as his physical discomfort.

Dr. Cady spoke on a medical practice act that the St. Louis Medical Society is trying to get in shape to introduce in the next session of the Legislature. After hearing his explanation the Society voted to approve and work for the act.

Dr. J. C. B. Davis, Willow Springs, presented two cases for clinical examination. One was a middle aged farmer who thought he had heart disease. Dr. Luton diagnosed it upon examination as one of the pseudo cases he had mentioned in his lecture. The other case was that of a young woman with eczema on her hands and arms which Dr. Cady diagnosed as of allergic origin and advised that a search be made for the offending article of food by omitting from the diet different foods for a week or so in turn until the right one was found.

It was voted not to establish a permanent place of meeting. The next meeting will be held at West Plains

and later meetings at different places as has been the custom.

A vote of thanks was given the speakers and the meeting adjourned at 4:30.

A. C. AMES, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

15th Annual Meeting, Atlantic City, 1937

President, Mrs. Robert Fitzgerald, Wauwatosa, Wisconsin.

President-Elect, Mrs. Augustus Kech, Altoona, Pennsylvania.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

13th Annual Meeting, Cape Girardeau, 1937

President, Mrs. Walter Kirchner, St. Louis.

President-Elect, Mrs. Charles Werner, St. Joseph.

The 12th annual convention of the Woman's Auxiliary to the Missouri State Medical Association was held in Columbia April 13 to 15. There were present one past president of the National Auxiliary, Mrs. A. B. McGlothlan, St. Joseph; one national chairman, Mrs. David S. Long, Harrisonville; thirty-three members of the state board; twenty-six delegates; five alternates; forty members, and six guests. There were 105 registered.

The business sessions were held at the Daniel Boone Tavern, and the Auxiliary luncheon and postconvention board meeting at the Pennant Hotel. The preconvention board meeting was devoted chiefly to recommendations from officers and chairmen. At the general session the president, Mrs. M. Pinson Neal, Columbia, presided; Mrs. M. P. Ravenel, president of the Boone County Auxiliary, gave the welcome to which Mrs. Herbert L. Mantz, Kansas City, president of the Jackson County Auxiliary, responded. The Memorial Hour was in charge of Mrs. C. M. Sneed, Columbia. The following Auxiliary members have died during 1935-36. Mrs. F. H. Spencer, Mrs. W. Rogers Moore, Mrs. B. E. Miles and Mrs. C. O. Dewey, Buchanan County; Mrs. C. H. Christian, Callaway County; Mrs. C. H. Suddarth, Clay County; Mrs. G. W. Whitely, Gentry County; Mrs. Robert McEwen Schaffler, Mrs. Everett A. Wilkinson and Mrs. C. C. Dennie, Jackson County; Mrs. John B. Shapleigh, St. Louis, and Mrs. George W. Horrom, 26th District.

The reports of the officers, chairmen and county presidents showed much excellent work done, all in conformity to the plans made by the National Auxiliary. Much valuable material has been assembled and classified by the Archives Chairman, Mrs. Walter Kirchner, St. Louis. There has been a large gain in membership and an even greater gain in interest.

Mrs. John O'Connell, St. Louis County, reported the following winners of the essay contest on "Pioneer Physicians of Missouri": Senior High Schools, 1st prize, Patricia Eckerle, Jackson County; 2nd prize, Roberta Soper, Saline County. Junior High Schools, 1st prize, Oneita B. Lever, Boone County; 2nd prize, Alice Rokach, Clay County.

There were many pleasant social affairs including a luncheon with Mrs. A. B. McGlothlan as toastmistress. All of the past presidents with the exception of Mrs. Willard Bartlett, St. Louis, and Mrs. George H. Hoxie, Kansas City, were present and spoke briefly. The new president, Mrs. Walter Kirchner, St. Louis, made a brief address. This was followed by a drive over Columbia ending with a tea at the beautiful home of Dr. and Mrs. Dudley Robnett.

The "bring-your-husband" dinner was well attended and the guests enjoyed an address by Dr. Dudley S. Conley, Columbia, and a program presented by students of Stephens College.

Among the guests of honor at the annual Auxiliary luncheon were Drs. E. Lee Miller, Ross A. Woolsey, J. F. Harrison, W. L. Allee, M. Pinson Neal and the guest speaker, Dr. T. W. Cotton.

The convention concluded with a board meeting over which Mrs. Walter Kirchner, St. Louis, presided. The new officers are: President, Mrs. Walter C. G. Kirchner, St. Louis; president-elect, Mrs. C. H. Werner, St. Joseph; recording secretary, Mrs. R. C. Haynes, Marshall; treasurer, Mrs. C. M. Sneed, Columbia; auditor, Mrs. Paul Cole, Springfield; 1st vice president, Mrs. Frank W. Gillham, Jefferson City; 2nd vice president, Mrs. W. R. Patterson, Warrensburg; 3rd vice president, Mrs. C. T. Ryland, Lexington; 4th vice president, Mrs. H. L. Mantz, Kansas City; directors for two years, Mrs. Joseph Trigg, St. Louis; Mrs. Paul Upshaw, Springfield; Mrs. E. E. Brown, Cape Girardeau; Mrs. H. W. Carle, St. Joseph; Mrs. H. S. Dowell, Chillicothe; corresponding secretary, Mrs. Frank L. Davis, St. Louis.

President's Message

Signal honors have come to the Missouri Auxiliary this year. It was our privilege and honor to play host to the charming group of Southern women who attended the meeting of the Southern Medical Association in St. Louis last November. It will be an unusual honor to the state when the Auxiliary to the American Medical Association will meet in Kansas City in May.

Missouri has twenty-one city, county and district auxiliary units comprising twenty-seven counties, with a membership of 988. There was a gain of 216 members this year.

Public Relations meetings with addresses given by members of the organized medical profession were held in thirteen counties and at the Missouri State Fair. A member of the American Medical Association's Department of Health and Public Instruction spent two days in one city delivering addresses to lay audiences.

The interest and cooperation of some of the newspapers and schools in the American Medical Association's talks over the radio networks was gratifying. The Auxiliary members of Missouri assisted in giving publicity to these talks.

Hygeia subscriptions totalled 410 with one county of sixty-three members (Buchanan County) obtaining 154 subscriptions.

Ten counties obtained the *News Letter* published by the Auxiliary to the American Medical Association.

The Quarterly *Bulletin* of the Missouri Auxiliary was issued without advertising being financed by the free-will offerings of members. It carries messages from the state president, suggestions from officers and chairmen and news of auxiliaries and personal items.

A scrap book of state activities was prepared by the chairman and displayed at the National convention.

The fourth annual essay contest on "The Pioneer Physicians of Missouri" for the pupils of the junior and senior high schools of the state, had 244 essays submitted. They were from eight counties. Prizes amounting to \$30.00 were given.

Many of the medical societies regularly call upon their auxiliaries to help with the social part of their special meetings.

Fifteen members of one county energetically assisted in securing votes for a bond issue to build a county hospital. The hospital is now under construction.

The work of our short year of eleven months terminated with the state meeting at Columbia, April 13-15, at which times reports of excellent work were given. The social gatherings were well attended. The guest speakers were Dr. Dudley S. Conley, Dean of the School of Medicine, University of Missouri, who spoke on "Some Problems of Medical Education," and Dr. T. W. Cotton, Van Buren, who spoke on "The Doctor's Wife."

MRS. M. PINSON NEAL.

MISCELLANY

COMMITTEE ON MATERNAL WELFARE

Treatment for Sore Nipples

QUESTION.—What is the treatment for sore nipples?

ANSWER.—Prevention is the most important treatment but when present discontinue nursing.

Both statements seem abrupt yet the failure of all local treatments that are known or have been used seem to justify the answer. Once a nipple is sore, sooner or later the milk supply is lessened or lost. The pain and distress in most instances makes nursing impossible aside from the loss of milk. To the individual physician or the largest obstetrical service the problem is the same. Oils, salves, ointment and many solutions have been tried but in every instance results have been disappointing. In every patient with sore nipples the danger of an abscessed breast must always be kept in mind and the sore nipple treated as an open wound. The pain and distress, the loss of the milk supply and the danger of an abscessed breast is the reason it is suggested to discontinue nursing. Many have suggested that if the prenatal care of breasts has been efficient few patients will have sore nipples. Scrubbing the breast and nipples daily or three or four times a week has been advocated. One school suggests application of lubricants to keep the nipples soft and pliable; another school suggests astringents to harden the nipples to make them resistant against nursing. Thus prenatal care has been used widely yet the results have been so disappointing that many men of large experience are saying that the prenatal care of breasts is unnecessary.

What then is the treatment of sore nipples if our time honored methods have proven a failure? The present day trend is to give more attention to the actual nursing period. There are certain types of nipples that make nursing impossible, i. e., too short, too large, certain depressed nipples and at times the over distended breast. The vigorous nursing baby or mothers whose milk is expressed with difficulty are factors in sore nipples. However, nursing on an empty or partially empty breast is the real cause of sore nipples.

Five points seen in nursing prove the statement:

- (1) The pink or light red nipple or normal nipple,
- (2) the intense red or hyperemic nipple which is a

danger signal, (3) white nipple especially end of nipple, (4) the excoriated nipple or erosion of surface tissue, and (5) the sore nipple.

All these stages may be seen in the same patient if nursing is continued too long on an empty breast. For this reason it is important to teach and demonstrate these stages to mothers.

The nipple may be released from time to time and the color observed. Never pull the nipple from the baby's mouth but open the mouth by gentle pressure made at the angle of the jaw with the thumb and index finger. As long as the nipple is pink or light red nursing may be continued. If the nipple becomes an intense red nursing should be discontinued until the light red color has returned.

If the nipple color passes from the intense red to the white stage, nursing must be discontinued for from two to three hours. If there is interference with the surface tissue the nipples become tender or actually sore. In this case nursing must be stopped entirely for a few days. In either case the milk supply is lessened or lost.

In those cases where the breast is engorged, if the mother is taught to massage the breast from the body to the nipple and is taught to express the milk before the baby is put to the breast, sore nipples may be avoided. This statement cannot be made too emphatic. Breast pumps whether hand or electric when not carefully used are a cause of sore nipples. Massaging the breast and expressing the milk or as is often said, getting the milk started, in all cases especially when the mother has difficulty in getting the milk started may avoid a sore nipple.

In the first few days before the milk supply is established massaging the breast and expressing the milk with the fingers relieves pain, makes icecaps unnecessary and makes changes in diet unnecessary. Thus a mother learns to express the milk with ease and relieves her pain.

The sore nipple is to be avoided and the only successful treatment known is to discontinue nursing, always treating the sore nipple as an open wound.

Finally, nursing of all primiparas should be supervised.

CONSTITUTION AND BY-LAWS OF THE MISSOURI STATE MEDICAL ASSOCIATION

CONSTITUTION

ARTICLE I.—NAME OF THE ASSOCIATION

The name and title of this organization shall be the Missouri State Medical Association.

ARTICLE II.—PURPOSES

The purposes of this Association are to promote the science and art of medicine, the protection of public health and the betterment of the medical profession; and to unite with similar organizations in other states and territories of the United States to form the American Medical Association.

ARTICLE III.—COMPONENT SOCIETIES

SECTION 1. Component societies shall consist of those county medical societies which hold charters from this Association.

SEC. 2. The terms, county medical society and component county medical society, shall be deemed to include all county medical societies and academics of medicine now in affiliation with this Association,

Adopted 1903.
Revised 1936.

or which may hereafter be organized and chartered by the House of Delegates of this Association.

ARTICLE IV.—COMPOSITION OF THE ASSOCIATION

This Association shall consist of members who shall be the members of the component county medical societies who have been certified to the headquarters of this Association, and whose dues and assessments for the current year have been received by the Secretary.

ARTICLE V.—HOUSE OF DELEGATES

The House of Delegates shall be the legislative body of the Association, and shall consist (1) of delegates elected by the component county societies, and (2) the officers of the Association enumerated in Section 1 of Article IX of this Constitution.

ARTICLE VI.—COUNCIL

The Council shall be the Board of Trustees of this Association. The Council shall have full authority and power of the House of Delegates between Annual Sessions, unless the House of Delegates shall be called into session as provided in the Constitution and By-Laws. It shall consist of the Councilors, the President, the President-Elect, the Secretary and the Treasurer of the Association. Nine of its members shall constitute a quorum.

ARTICLE VII.—SECTIONS AND DISTRICT SOCIETIES

The House of Delegates may provide for a division of the scientific work of the Association into appropriate Sections and for the organization of such Councilor District societies as will promote the best interests of the profession, such societies to be composed exclusively of members of component county societies.

ARTICLE VIII.—SESSIONS AND MEETINGS

SECTION 1. The Association shall hold an Annual Session during which there shall be at least two General Meetings open to all registered members, delegates and guests.

SEC. 2. The time and place for holding each Annual Session shall be fixed by the House of Delegates, or such authority may be delegated to the Council.

SEC. 3. Special meetings of either the Association or the House of Delegates may be called by a two thirds vote of the Council or upon petition by twenty delegates.

ARTICLE IX.—OFFICERS

SECTION 1. The officers of this Association shall be a President, a President-Elect, three Vice Presidents, a Secretary, a Treasurer and twenty-nine Councilors, more or less as shall be determined by the House of Delegates from time to time. (Provision for three Vice Presidents adopted 1931.)

SEC. 2. The officers, except the Councilors, shall be elected annually. The terms of the Councilors shall be for two years; one half the members of the Council shall be elected each year. The Secretary and the Treasurer shall be elected by the Council. All these officers shall serve until their successors are elected and installed.

ARTICLE X.—FUNDS AND EXPENSES—BUDGET

Funds shall be raised by an equal per capita assessment on each component society. The amount of the assessment shall be fixed by the House of Delegates. Funds may also be raised by voluntary contributions, from the Association's publications and in any other manner approved by the House of Delegates. The Council shall submit an annual budget to the House of Delegates. All resolutions providing for appropriations shall be referred to the Council

and all appropriations approved by the Council shall be included in the annual budget.

ARTICLE XI.—REFERENDUM

At any General Meeting of the Association it may, by a two thirds vote, order a general referendum upon any question pending before the House of Delegates. The House of Delegates may, by a vote of its members, submit any question to the membership of the Association for its vote. A majority vote of all the members of the Association shall determine the question.

ARTICLE XII.—SEAL

The Association shall have a common seal. The power to change or renew the seal shall rest with the House of Delegates.

ARTICLE XIII.—AMENDMENTS

The House of Delegates may amend any article of this Constitution by a two thirds vote of the Delegates present at any Annual Session, provided that such amendment shall have been presented in open meeting at the previous Annual Session, and that it shall have been published twice during the year in THE JOURNAL of this Association, or sent officially to each component society at least two months before the meeting at which final action is to be taken.

BY-LAWS

CHAPTER I.—MEMBERSHIP

SECTION 1. The name of a physician on the official roster of this Association, after it has been properly reported by the secretary of his county society, shall be *prima facie* evidence of membership and of his right to register at the Annual Session.

SEC. 2. No person who is under sentence of suspension or expulsion from any component society of this Association, or whose name has been dropped from its roll of members, shall be entitled to any of the rights or benefits of this Association.

SEC. 3. Each member in attendance at the Annual Session shall register, when his right to membership has been verified by reference to the records of this Association. No member shall take part in any of the proceedings of the Annual Session until he has complied with the provisions of this section of the By-Laws.

CHAPTER II.—GENERAL MEETINGS

SECTION 1. The General Meetings shall be open to all registered members and guests. Before them, at such times as may have been arranged, shall be delivered the annual addresses of the President and of the President-Elect and the annual orations.

SEC. 2. No address or paper, except those of the President, the President-Elect and the annual orations, shall occupy more than twenty minutes in its delivery. No member, except by unanimous consent, shall speak more than once in the discussion of any paper nor longer than five minutes at any one time.

SEC. 3. All papers read before this Association shall be its property. Each paper, when it has been read, shall be deposited with the Secretary. Authors of papers read before this Association shall not cause them to be published elsewhere until after they have been published in its JOURNAL.

CHAPTER III.—HOUSE OF DELEGATES

SECTION 1. The House of Delegates shall meet annually at the time and place of the Annual Session. It shall remain in continuous session on the first day of the Annual Session and complete the work coming before it at that session. It shall meet

on the third day of the Annual Session to receive the report of the Nominating Committee and complete unfinished business and the election of officers. No new business shall be introduced at this session without the unanimous consent of the delegates.

SEC. 2. Each component county society shall be entitled to send each year one delegate or one corresponding alternate to the House of Delegates for each fifty full paid members or fraction thereof in the Association on December 31 of the previous year; provided, however, that each component society shall be entitled to at least one delegate or one corresponding alternate from each of the counties of which it is composed. (Adopted 1934.)

SEC. 3. Forty delegates shall constitute a quorum of the House of Delegates. All meetings of the House of Delegates shall be open to members of the Association.

SEC. 4. From among members of the House of Delegates the President shall appoint Reference Committees to which reports and resolutions shall be referred as follows:

Reference Committee on Amendments to the Constitution and By-Laws.

Reference Committee on Resolutions.

Reference Committee on Miscellaneous Affairs.

Reference Committee on Medical Education and Public Welfare.

He shall also appoint a Committee on Credentials and such other committees as may be considered by him to be necessary. (Reference Committee on Medical Education and Public Welfare created 1936.)

SEC. 5. The House of Delegates shall elect delegates to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body.

SEC. 6. The House of Delegates shall upon application provide and issue charters to county societies organized to conform to the spirit of this Constitution and By-Laws.

SEC. 7. The House of Delegates shall divide the state into Councilor Districts specifying what counties each district shall include and, when the best interest of the Association and the profession will be promoted thereby, organize in each a district medical society of which all members of the component county societies shall be members.

SEC. 8. The House of Delegates shall have authority to appoint committees for special purposes from among members of the Association who are not members of the House of Delegates. Such committees shall report to the House of Delegates and may be present and participate in the debate on their reports.

SEC. 9. The House of Delegates shall receive and act upon a complete and detailed annual audit of receipts and expenses of the preceding year and a proposed budget for the ensuing year which shall have been prepared by the Council and submitted to the component county societies by publication in THE JOURNAL before March 31 of each year. (Adopted 1934.)

SEC. 10. It shall approve all memorials and resolutions issued in the name of the Association before they shall become effective.

CHAPTER IV.—ELECTION OF OFFICERS

SECTION 1. The President on the first day of the Annual Session shall select a committee on nominations consisting of ten delegates, no two of whom shall be from the same councilor district. The Committee on Nominations shall report the result of its deliberations to the House of Delegates in the form of a ticket containing the name of one member for each of the offices to be filled at that Annual Session

excepting the President-Elect who shall be nominated from the floor of the House of Delegates. On the adoption of this section the nomination of the President for the succeeding year shall be made from the floor of the House. Each candidate for Councilor must reside or practice in the district for which he is nominated. (Provision for practice in district adopted 1936.)

SEC. 2. The election of officers and the report of the Nominating Committee shall be the first order of business of the House of Delegates at the second meeting of the House.

SEC. 3. All elections of officers shall be by ballot and a majority of the votes cast shall be necessary to elect except for delegates and alternates to the American Medical Association. In case no nominee receives a majority of the votes on the first ballot, the nominee receiving the lowest number of votes shall be dropped and a new ballot taken. This procedure shall be continued until one of the nominees receives a majority of all the votes cast, when he shall be declared elected. In case no delegates or alternates for the American Medical Association receive on the first ballot a majority of the vote, the nominees shall be declared elected in the order of the highest number of votes received until the allotted number shall have been chosen. In case of a tie vote for delegate or alternate, the tie shall be determined by lot.

SEC. 4. Nothing in this chapter shall be construed to prevent additional nominations being made from the floor by members of the House of Delegates.

SEC. 5. No person known to have solicited votes for or sought any office within the gift of this Association shall be eligible for any office for two years.

SEC. 6. Delegates shall not be eligible for election to any of the offices named in the Constitution, except that of Councilor.

CHAPTER V.—DUTIES OF OFFICERS

SECTION 1. The President shall preside at all meetings of the Association and of the House of Delegates; shall appoint all committees not otherwise provided for; he shall deliver an annual address at such time as may be arranged, and shall perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the state during his term of office, and, as far as practicable, shall visit, by appointment, the various sections of the state and assist the Councilors in building up the county societies and in making their work more practical and useful.

SEC. 2. The President-Elect shall be a member of the Council and of the Executive Committee of the Council ex-officio and shall attend all meetings of those bodies. Should the office of President-Elect become vacant through death or otherwise the Council may fill the vacancy until the next Annual Meeting of the Association. (Member of Executive Committee and provision for filling vacancy adopted 1930.)

SEC. 2a. The Vice Presidents shall assist the President in the discharge of his duties. In the event of the death, resignation or removal of the President the Council shall select one of the Vice Presidents to succeed him. (Adopted 1931.)

SEC. 3. The Treasurer shall give bond in the sum of \$20,000. He shall demand and receive all funds due the Association, together with bequests and donations. He shall pay money out of the treasury only on a written order of the President, countersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands.

SEC. 4. The Secretary shall attend the General Meetings of the Association and the meetings of the House of Delegates, and shall keep minutes of their respective proceedings in separate record books. He shall be Secretary of the Council and shall keep a record of its proceedings. He shall be custodian of all record books and papers belonging to the Association, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Association which come into his hands. He shall provide for the registration of the members and delegates at the Annual Session. He shall, with the cooperation of the secretaries of the component societies, keep a card-index register of all the legal practitioners of the state by counties, noting on each his status in relation to his county society, and shall transmit a copy of this list to the American Medical Association, transmitting to its Secretary each month a report containing the names of new members and the names of those dropped from the membership roster during the preceding month. He shall conduct the official correspondence, notifying members of meetings, officers of their election and committees of their appointment and duties. He shall employ such assistants as may be ordered by the Council and shall make an annual report to the House of Delegates. He shall supply all component societies with the necessary blanks for making their reports, and shall collect from them the regular per capita assessments and turn the same over to the Treasurer. The amount of his salary shall be fixed by the Council.

CHAPTER VI.—COUNCIL

SECTION 1. The Council shall meet on the first day of the Annual Session, and daily during the Session and at such other times as necessity may require, subject to the call of the Chairman or on petition of three Councilors. It shall meet on the third day of the Annual Session of the Association to organize. It shall, through its Chairman, make an annual report to the House of Delegates.

SEC. 2. Each Councilor shall be organizer, peace-maker and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exists, for inquiring into the condition of the profession, and to keep in touch with the activities of and to aid in the betterment of the component societies of his district. He shall make an annual report of his work, and of the condition of the profession of each county in his district at the Annual Session of the Council. The necessary traveling expenses incurred by each Councilor in the line of duties herein imposed may be allowed on a proper itemized statement, but this shall not be construed to include his expense in attending the Annual Session of the Association.

SEC. 3. The Council shall be the executive body of the House of Delegates and between sessions shall exercise the power conferred on the House of Delegates by the Constitution and By-Laws. Three members of the Council, elected by the Council, together with the President, President-Elect and the Secretary, shall be the Executive Committee of the Council and shall constitute a quorum for the transaction of business excepting that concerning the conduct of a member, when a majority of the membership of the Council shall be necessary to act; provided, the action of the Executive Committee of the Council shall be subject to the approval of the Council.

SEC. 4. The Council shall be the Board of Censors of the Association. It shall consider all questions involving the right and standing of members,

whether in relation to other members, to the component societies or to this Association. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or component societies, on which an appeal is taken from the decision of an individual Councilor. Its decision in all cases, including questions regarding members in this Association, shall be final.

SEC. 5. Charters shall be issued to county societies only on approval of the Council, and shall be signed by the President and Secretary of this Association. Upon the recommendation of the Council, the House of Delegates may revoke the charter of any component society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

SEC. 6. In sparsely settled sections the Council shall have authority to organize the physicians of two or more counties into societies, to be suitably designed so as to distinguish them from district societies, and these societies, when organized and chartered, shall be entitled to all rights and privileges provided for component societies until such counties shall be organized separately.

SEC. 7. The Council shall provide for and superintend the issuance of all publications of the Association including proceedings, transactions and memoirs, and shall have authority to appoint an editor and such assistants as it deems necessary. It shall prescribe the methods of accounting and through a committee of three of its members, to be known as a Committee on Auditing and Appropriations, shall audit all accounts of this Association. The Council shall adopt an annual budget providing for the necessary expenses of the Association which shall be prepared and presented for its consideration by the Committee on Auditing and Appropriations at the first meeting of the Council in November of each year, and submit a complete and detailed report to the component county medical societies as provided in Section 9, Chapter 3. The Council shall submit an annual report to the House of Delegates which shall specify the character and cost of the publications of the Association, the amount and character of all its property, and shall provide full information concerning the management of all affairs of the Association which the Council is charged to administer. (Provision for report to county societies adopted 1934.)

SEC. 8. The Council shall appoint, at least six months before the Annual Session, a committee, consisting of three of its members, to be known as the Committee on Arrangements for the Annual Session. On recommendation of this committee, the Council shall appoint a general chairman of a local committee on arrangements, who shall be a member of the component society of the county in which the Annual Session is to be held, and who shall appoint and organize from the members of this county society the personnel of the local committee on arrangements. The local committee on arrangements shall provide suitable meeting places and shall have general charge of all local arrangements subject to the approval of the Committee on Arrangements for the Annual Session. All receipts accruing from the Committee on Arrangements and all expenditures made by that committee in connection with the Annual Session must be authorized in advance by the Committee on Auditing and Appropriations. Immediately after the Annual Session the Committee on Arrangements shall forward to the Treasurer any accumulated balance. Any deficit created on account of the

Annual Session shall be met by the Council on recommendation of the Committee on Auditing and Appropriations.

SEC. 9. The Council shall by appointment fill any vacancy in office not otherwise provided for which may occur during the interval between Annual Sessions of the House of Delegates; the appointee shall serve until his successor has been elected and has qualified.

SEC. 10. The salaries of all employees of the Association shall be fixed by the Council.

SEC. 11. The Council shall provide such headquarters for the Association as may be required to conduct its business properly.

CHAPTER VII.—COMMITTEES

SECTION 1. The standing committees of this Association shall be as follows:

- A Committee on Scientific Work.
- A Committee on Public Policy.
- A Committee on Publication.
- A Committee on Medical Defense.
- A Committee on Medical Education and Hospitals.
- A Committee on Medical Economics.
- A Committee on Postgraduate Course.
- A Committee on Cancer.
- A Committee on Maternal Welfare.
- A Committee on Mental Health.
- A Committee on Health and Public Instruction (The McAlester Foundation).

Unless otherwise provided in these By-Laws, each of these committees shall consist of three members, each of whom shall serve for a term of three years. One member of each of these committees shall be appointed annually by the President, by and with the consent of the House of Delegates, provided that at the Seventieth Annual Session one member of each of the foregoing committees shall be appointed for a term of three years, one each for two years, and one each for one year. (Committee on Cancer created 1931.) (Committees on Maternal Welfare, Mental Health and Health and Public Instruction created in 1936.)

SEC. 2. The Committee on Scientific Work shall consist of three members, of which the Secretary shall be one, and shall determine the character and scope of the scientific proceedings of the Association for each session, subject to the instructions of the House of Delegates. Thirty days previous to each Annual Session it shall prepare and issue a program announcing the order in which papers and discussions shall be presented.

SEC. 3. The Committee on Public Policy shall consist of three members, and the President and the President-Elect, and such other members whose experience suggests their value in emergency, to be called by the chairman of the committee. There shall be a joint meeting of this committee and an auxiliary committee, as provided for in Chapter XI, Section 10 of these By-Laws, held annually, as may be ordered on the call of the chairman or three members of the State Committee. The chairman of the State Committee, and in his absence, the President, shall act as chairman at the joint committee meetings. Under the direction of the State Committee, the joint committee shall represent the Association in securing and enforcing legislation in the interest of public health and of scientific medicine.

SEC. 4. The Committee on Publication shall have referred to it all reports on scientific subjects and all scientific papers and discussions heard before the Association. It shall be empowered to curtail, abstract or reject papers and discussions. The com-

mittee shall arrange for the publication and distribution of THE JOURNAL.

SEC. 5. The Committee on Defense shall upon request and in compliance with the conditions hereinafter named, aid in the defense of suits for alleged malpractice instituted or threatened against any member of the Association.

CONDITIONS

(a) Any member whose annual dues have been received by the Secretary of the County Society on or before April 1 shall have the continuous protection provided for in this section. New members have a right to defense on receipt of their dues by the Secretary of the County Society.

(b) Any member whose annual dues have not been received on or before April 1 shall be delinquent from the first day of January of that year and shall remain so until his dues are paid. No member shall receive legal defense for any malpractice suit filed before the date of his enrollment as a member or during his delinquency; nor if the service for which malpractice is alleged was rendered wholly or in part before the date of his enrollment as a member or during his delinquency.

(c) Any member desiring to avail himself of the provisions of this section shall, within three days after any demand has been made upon him, present his request to the Secretary of this Association, together with a complete history of the case and the services therein rendered. The Committee shall then, with the aid of its counsel, advise said member up to the time of the institution of suit. Should suit be filed, a copy of the plaintiff's petition must be immediately forwarded to the Secretary of this Association. The Committee shall thereupon provide such medical expert and legal services of counsel as may be necessary, but in no case shall the cost to this Association be in excess of \$300 for all such services. The Association does not obligate itself to pay, nor shall it pay in whole or in part, any damages agreed upon in compromise, or awarded after trial, nor shall it pay any of the expenses incident to the taking of depositions nor any of the costs of court. (\$300 provision adopted 1930.)

(d) No member shall be entitled to the above-described defense should the charge of malpractice be brought jointly against him and a hospital or sanatorium in which he is, or at the time of the alleged malpractice was, financially interested.

(e) Such aid as is specified in this section refers to civil malpractice only and is not to be construed to apply to criminal prosecutions.

SEC. 6. The Committee on Medical Education and Hospitals shall serve in this State for the Council on Medical Education and Hospitals of the American Medical Association, and shall have referred to it all questions pertaining to hospitals and medical education.

SEC. 7. The Committee on Medical Economics shall investigate matters affecting the economic status of physicians and shall report annually to the House of Delegates such recommendations as may, in its judgment, seem proper.

SEC. 8. The Committee on Postgraduate Course shall provide speakers for district society meetings when requested by the councilor.

SEC. 9. The Committee on Cancer shall investigate the facilities provided for the care of the cancer sufferer and for the study of cancer in the State of Missouri and shall cooperate with the American Society for the Control of Cancer and other ethical organizations for cancer control to the end that authentic information in regard to diagnosis and treat-

ment of cancer be properly disseminated throughout the State of Missouri. (Adopted 1931.)

SEC. 10. The Committee on Maternal Welfare shall consist of five members. One member shall be appointed by the President at the 79th Annual Session and two members shall be appointed for each two succeeding Annual Sessions, by and with the consent of the House of Delegates, each appointment being for a term of three years. The duties of this Committee shall be to keep in touch with and investigate matters concerning maternal and child welfare. It shall carry on activities in the field of maternal and child welfare and in cooperation with the Committee on Postgraduate Course and the State Board of Health through its Division of Child Hygiene conduct postgraduate courses for the profession and disseminate information of an educational nature. (Adopted 1936.)

SEC. 11. The Committee on Mental Health shall consist of five members. The term of each member shall be for a period of three years. Two members shall be appointed by the President at the 79th Annual Session and two members shall be appointed at the following Annual Session, and one member shall be appointed at the second succeeding Annual Session, by and with the consent of the House of Delegates. The duties of the Committee shall be to engage in the promotion of good mental health, the prevention of mental ill health and lend its support toward securing cooperation of all state or governmental agencies in obtaining better treatment of the mentally ill. It shall cooperate with the Committee on Mental Health of the American Medical Association and with the Eleemosynary Board of the State of Missouri. (Adopted 1936.)

SEC. 12. The duties of the Committee on Health and Public Instruction (The McAlester Foundation) shall be to keep in touch with, and investigate matters concerned with the public health and carry on such activities in the field of public health and the dissemination of information to lay groups in relation thereto as may be deemed appropriate; and shall cooperate with the Bureau of Health and Public Instruction of the American Medical Association and the Board of Health of the State of Missouri. (Adopted 1936.)

CHAPTER VIII.—DUES AND ASSESSMENTS

SECTION 1. The annual dues shall be eight dollars, and shall be levied per capita on the members of the component societies of the Association, provided that for the first four years subsequent to graduation the annual dues shall be one half of the regular dues with all the privileges of active membership in the Association. Dues shall be payable on or before January 1 of the year for which they are levied. One dollar of the annual dues shall be credited to subscription to THE JOURNAL for one year. The secretary of each component society shall cause to be collected and shall forward to the offices of the Association the dues and assessments for its members, together with such data as shall be required for a record of its officers and members. Any member whose name has not been reported for enrollment and whose dues have not been remitted to the Secretary of this Association on or before April 1, shall stand suspended until his name is properly reported and his dues for the current year are paid. (Four-year provision adopted 1928.) (Privileges of active membership adopted 1934.)

SEC. 2. The record of payment of dues and assessments on file in the offices of the Association shall be final as to the fact of payment by a member and as to his right to participate in the business and pro-

ceedings of the Association and of the House of Delegates.

SEC. 3. Any county society which fails to make the reports required, at least thirty days before the Annual Session of the State Association, shall be held suspended, and none of its members or delegates shall be permitted to participate in any of the proceedings of the Association or of the House of Delegates.

CHAPTER IX.—RULES OF CONDUCT

The ethical principles governing the members of the American Medical Association shall govern members of this Association.

CHAPTER X.—RULES OF ORDER

The deliberations of this Association shall be conducted in accordance with parliamentary usage as defined in Robert's Rules of Order.

CHAPTER XI.—COUNTY SOCIETIES

SECTION 1. All county societies now in affiliation with the State Association or those that may hereafter be organized in this state, which have adopted principles of organization not in conflict with this Constitution and By-Laws shall, upon application to the Council, receive charters from this Association, provided that their Constitutions and By-Laws shall have been submitted to the Council and received its approval.

SEC. 2. Only one component medical society shall be chartered in each county.

SEC. 3. Each county society shall judge of the qualifications of its members, subject to review and final decision by the Council of the State Association. Every reputable and legally qualified physician who does not practice, nor profess to practice sectarian medicine, and who resides or practices in the same county, who shall apply for membership on the prescribed form and subscribe for THE JOURNAL and pay the annual dues for the current year, shall be eligible for election to membership. (Provision for practice in county adopted 1931.)

A member of a component society whose license has been revoked shall be dropped from membership automatically as of the date of revocation. The Council of the State Association shall have final authority to expel a member should a component county society fail to do so after being so requested by the Council.

A component society may at its discretion place active members who have reached advanced years and have long served the Association and profession, on an "Honor List" and such members shall be known as "Honor Members." They shall enjoy all the privileges of active membership and shall be exempt from the payment of dues.

The Council may upon request of a component society remit the state assessment of a member who has become totally and permanently incapacitated through mental or physical disability and has been a member in good standing during the three consecutive years immediately preceding his disability; provided, that the component society shall remit the county society dues of such member.

A physician living near a county line may hold his membership in that county most convenient for him to attend, on permission of the component society in whose jurisdiction he resides.

SEC. 4. Any physician who may feel aggrieved by the action of the society of his county in suspending or expelling him, shall have the right to appeal to the Council, whose decision shall be final. A county society shall at all times be permitted to appeal or

refer questions involving membership to the Council of the State Association for final determination.

SEC. 5. In hearing appeals the Council may admit oral or written evidence as in its judgment will most fairly present the facts, but in the case of every appeal both as a board and as individuals, the Councilors shall, preceding all such hearings, make efforts at conciliation and compromise.

SEC. 6. When a member in good standing in a component county society moves to another county in this state, he shall be given a written certificate of these facts by the secretary of his society, without cost, for transmission to the secretary of the society in the county to which he moves. Pending his acceptance or rejection by the society in the county to which he removes such member shall be considered to be in good standing in the county society from which he was certified and in the State Association to the end of the period for which his dues have been paid.

A member of a component society who removes to and engages in the practice of medicine at a location in another county in which there is a component society shall forfeit his membership in this Association and the Secretary shall remove his name from the roster of members of the Missouri State Medical Association unless within one year after such change of residence he becomes a member of the component society in the county to which he has moved.

SEC. 7. Each county society shall have general direction of the affairs of the profession in the county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county. Systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it includes every eligible physician in the county.

SEC. 8. At some meeting in advance of the Annual Session of this Association, each component county society shall elect one or more delegates and an equal number of individual alternates therefor to represent it in the House of Delegates of this Association, in accordance with Chapter III, Section 2, of these By-Laws. The secretary of each county society shall send a list of such delegates and alternates to the Secretary of this Association at least thirty days before the Annual Session. Representation in the House of Delegates shall be contingent on compliance with the foregoing provisions.

SEC. 9. The secretary of each county society shall keep a roster of its members and, if practicable, a list of non-affiliated physicians, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this state, and such other information as may be deemed necessary by the Council. He shall send a copy of the program of each meeting to his district Councilor and to the Secretary of the State Association.

SEC. 10. Each county society shall appoint or elect one of its members as a member of the Auxiliary Committee on Public Policy, and the county society secretary shall send his name and address at once to the Secretary of this Association. The Committee on Public Policy of this Association shall formulate the duties of this auxiliary committee and supply each member with a copy. The auxiliary committee-men shall be accountable to their county societies and to the Council for prompt response to and continued cooperation with the Committee on Public Policy of this Association.

SEC. 11. The State Association, or a county society in manner approved by the State Association, may undertake and coordinate all sickness, care of indigents and low income groups through agreements

with public officials, and with physicians and others and by the use of contributions, cooperative funds and other means, provided only that free choice of physician within such agreements shall be retained and that responsibility of physician to patient and all other agreements and tort relationships with patient shall remain as though the dealings were direct between physician and patient. (Adopted 1936.)

CHAPTER XII.—AMENDMENTS

SECTION 1. These By-Laws may be amended at any Annual Session by a two thirds vote of the delegates present at that session, if the proposed amendment has been properly submitted to the House of Delegates and has lain on the table for one day. (Amendment adopted 1930.)

SEC. 2. Upon the adoption of this Constitution and these By-Laws, all previous Constitutions and By-Laws are thereby repealed.

BOOK REVIEWS

DISEASES PECULIAR TO CIVILIZED MAN. Clinical Management and Surgical Treatment. By George Crile, M.D. Edited by Amy Rowland. New York: The Macmillan Company. 1934. Price \$5.00.

That one of the characteristics which separates man from the other mammalia is his incessant activity, especially mental and emotional. That the same forces which have driven man to his present highly civilized state will perhaps drive him to destruction, for evolution may be the curse as well as the blessing of civilization, and there are now beginning to appear certain diseases which are due to the overactivity of this energy.

That the frontal lobe is where all civilization has been planned and carried out, and that the driving force behind it is the thyroid gland. With excessive thyroid activity there is excessive brain activity. That the adrenal glands are the organs that govern energy output, so that in all animals who depend on a rushing attack or a swift escape, the weight of the adrenal glands is greater than that of the thyroid, in some species two or three times so. Contrastingly, in man, in whom needs for the sudden output of energy are comparatively rare, but in whom energy must be maintained at a constant high level throughout his life, the thyroid gland weighs approximately twice as much as the adrenals. On the other hand, many organs in man are declining at a rate practically equal to that of the rise of the brain and the thyroid gland, as for example the teeth, the muscles, the digestive organs, the special senses, and those of procreation.

That the principal diseases caused by the excessive activity of the brain-thyroid-adrenal-sympathetic system, hyperthyroidism, neurocirculatory asthenia, peptic ulcer and diabetes, are all diseases seen largely or exclusively in the human race, and especially, but by no means exclusively, among those individuals and races that are the most outstanding in intellectual and emotional values.

That the treatment of these diseases, outside of physiologic rest, is division of the nerves coming from the adrenals. Denervation of one gland is often sufficient. If the symptoms are not relieved thereby, the opposite gland is denervated later. The operation is described and illustrated with painstaking detail. Through his surgical methods Crile claims improvement or cure in 94 per cent of his cases of neurocirculatory asthenia, a cure in 93.7 per cent of the cases of hyperthyroidism, and improvement or cure in 96.4 per cent of the cases of peptic ulcer.

The disease entity neurocirculatory asthenia is thor-

oughly and satisfactorily described in thirty-three pages, two thirds of the book is given over to treatment, and more than half of the 427 pages is used in relating case histories following operation. L. S.

GYNECOLOGICAL AND OBSTETRICAL TUBERCULOSIS. By Edwin M. Jameson, B.S., M.D., Fellow of Trudeau Foundation, Attending Surgeon, Saranac Lake General Hospital and Reception Hospital. Illustrated with 31 engravings. Philadelphia: Lea & Febiger. 1935. Price \$3.50.

Dr. Jameson of the Trudeau Foundation, Saranac Lake, New York, has compiled a very complete treatise on the subject of tuberculosis of the female genitalia. This pathological condition is interesting, but rarely observed by gynecologists or general surgeons outside of tubercular sanatoria.

It is deduced from reading this monograph that tuberculosis of the female genitalia is almost always secondary to a primary pulmonary infection. When operative procedures are indicated in these cases it is obvious that an inhalant anesthetic is not practicable. The surgeon may resort to narcotics, dial intravenously, or perhaps spinal anesthesia.

The chapter on pregnancy complicated with pulmonary tuberculosis is intelligently discussed. It has long been known that this condition has a tragic answer.

The book is well written and is backed by a tremendous amount of research and experience. This monograph would be an asset to any physician's library. M. A. H.

RUSSELL A. HIBBS. A Pioneer in Orthopedic Surgery 1869-1932. By George M. Goodwin. New York: Morningside Heights: Columbia University Press. 1935. Price \$2.00.

A short story of the life of Dr. Hibbs told in a simple but charming manner and giving one a very good idea of man's determination and ability in reaching the peak of his attainments. It portrays to those who knew him a picture of him as he really was. The latter half of the volume contains a "Tribute to Russell Hibbs" by Karl Vogel. There follows a description of the outstanding methods of operations devised by Dr. Hibbs. The reading of this small book has been a real pleasure. C. A. S.

HUMAN PATHOLOGY. A Textbook. By Howard T. Karsner, M.D., Professor of Pathology, Western Reserve University, Cleveland, Ohio. With an Introduction by Simon Flexner, M.D. Eighteen illustrations in color and 443 black and white. Fourth Edition, Revised. Philadelphia & London: J. B. Lippincott Company. 1935. Price \$10.00.

Dr. Karsner's Fourth Edition of Human Pathology, like the previous editions, can be divided sharply into two sections. First, the early principles of pathology, and, second, special pathology and systemic pathology. To one trained on "Adams Principles" the first few chapters seem stumbling, and poorly organized. It is a matter of training and personal preference, but I prefer much broader definition and conception in pathological principles. Numerous inaccuracies and poorly organized paragraphs show up in the first few chapters.

On the other hand, the chapter on "Mineral Infiltrates and Concrements" is clear, concise and to the point without stressing controversial subjects.

When the two chapters on special pathology, "Infectious Granulomas, and Tumors" are reached the whole tone seems to change. Tremendous amounts of material are well organized, condensed and simply and

naturally presented. Some of the uncertain is shown to encourage further study and leave unproved subjects open, while not enough uncertainty is shown to detract from the continuity of the picture.

Part 2 dealing with systemic pathology is well organized and condensed, keeping the book well within the realm of a textbook but containing enough information to be of value as a reference book to the clinician. The references at the end of each chapter bring the book to the level of a valuable reference book for the pathologist. H. N. A.

THE DIAGNOSIS AND TREATMENT OF PULMONARY TUBERCULOSIS. A Handbook for Practitioners. A Text-Book for Students, Nurses and Social Workers. By John B. Hawes, 2d, M.D., President of the Boston Tuberculosis Association, etc., and Moses J. Stone, M.D., Assistant Professor, Diseases of the Chest, Boston University, School of Medicine, etc. With a Foreword by Richard C. Cabot, M.D. Illustrated with 43 engravings. Philadelphia: Lea & Febiger. 1936. Price \$2.75.

At \$2.75, this little book is a better investment than the bulky volumes standing on the shelves without a hope of being read. It answers every practical question the practicing physician may ask and does so in a direct and convincing way leaving no confusion in the mind; for it speaks with authority and in the modern voice.

Against the frequent fluoroscopic examination, recommended under pneumothorax refills, the reviewer must enter protest. Exposure of the patient to the X-ray oftener than once in two weeks over a prolonged time, is cautioned against, to avoid harm to observer as well as patient.

Withal, the book is so readable as to be really entertaining. L. S.

INTERNATIONAL CLINICS. By leading Members of the Medical Profession Throughout the World. Edited by Louis Hamman, M.D., Visiting Physician, Johns Hopkins Hospital, Baltimore, Md. Volume IV. Forty-Fifth Series, Philadelphia, Montreal, London: J. B. Lippincott Company. 1935. Price \$3.00.

This issue will be of interest to Kansas Citians in that it contains an article by Herman E. Pearce, Jr., who is an assistant professor of surgery at the University of Rochester School of Medicine, Rochester, New York. He discusses peripheral arterial disease.

The scholarly physician will be interested in Dr. Seham's article on functional disease. This gets us nowhere, but it is interesting in causing us to review our knowledge of the subject.

Janet Vaughan of London gives us a valuable discussion of idiopathic steatorrhea, which is sometimes known as celiac disease in children, and nontropical sprue in this country. The article is worth reading.

J. H. Means gives an interesting talk on the observation of the tongue, a point too often overlooked by the younger men.

Perrin H. Long, Associate in Medicine at Johns Hopkins, condemns the use of vaccines, as most of the general practitioners are now using them. He says that typhoid vaccine is the only bacterial vaccine which fulfills the requirements of an efficient bacterial immunizing agent.

Your reviewer was interested in another article; namely, that on aleukemic leukemia or hypocytic leukemia, by Roy R. Kracke of Atlanta. One can understand that these cases are not so rare as the literature would indicate because the diagnosis is rather difficult. G. H. H.

OBSTETRICAL PRACTICE. By Alfred C. Beck, M.D., Professor of Obstetrics and Gynecology, Long Island College of Medicine; Obstetrician and Gynecologist-in-Chief, Long Island College Hospital, Brooklyn. More than one thousand illustrations. Baltimore: The Williams & Wilkins Company. 1935. Price \$7.00.

The author begins by giving an excellent description of the ovarian cycle; then by logical sequence leads to the other divisions of normal and pathologic obstetrics. An excellent list of references is appended at the end of each chapter. Although not complete these references if carefully followed will greatly enlarge one's concept of obstetrics.

The book is an excellent one and doubtlessly will soon become a standard text, particularly for the medical student.

This text is neatly printed on an excellent grade of paper stock. The illustrations and cuts consist of black and white drawings. Such a procedure lowers the publication cost and allows a greater number of illustrations, which are important in a text of this nature. Here a lack of pictorial color does not defeat the teaching value.

D. T. V.

SYNOPSIS OF CLINICAL LABORATORY METHODS. By W. E. Bray, B.A., M.D., Professor of Clinical Pathology, University of Virginia; Director of Clinical Laboratories, University of Virginia Hospital. Thirty-two test illustrations, eleven color plates. St. Louis: The C. V. Mosby Company, 1936. Price \$3.75.

As its name implies, this book is a detailed outline of clinical laboratory methods. Its object is to bring together, in a small volume, information and methods of laboratory diagnosis. It covers the usual laboratory subjects such as, urinalysis, hematology, blood chemistry, gastric analysis, feces and intestinal parasites, puncture fluid examination, sputum, bacteriology, milk and water analysis, serology, basal metabolism, allergy tests, examination for poisons, surgical pathology, and finally contains a chapter of directions for the making of laboratory reagents. As a handy laboratory manual, when one does not wish to read through a wealth of material, this book is very valuable.

The book begins with general laboratory rules which contain some very important advice for technicians. This is followed with suggestions to the physician for the laboratory tests indicated in certain cases. This outline should prove of value.

One must become acquainted with the arrangement of the book if one is not familiar with the tests. The author gives a general outline of procedure for selection of certain tests, then later in the chapter gives the detailed method of procedure. Still farther along, in the last chapter, he gives the method of making the reagents for these tests. This arrangement is probably very useful for the practicing physician, but a little confusing for the technician.

As the author states, the chapter on hematology does not discuss the differential diagnosis of the various blood diseases, but gives briefly various hematologic methods. In addition to many useful descriptions of tests, it gives a very brief but accurate explanation of the various shifts of Schilling. This chapter is a little too brief to be of value to those not thoroughly familiar with hematologic procedure (it contains no description of blood cells), but will be found very useful to those with experience in this subject.

The book contains a very brief outline of parasitology. This chapter might have been extended to in-

clude more types of parasites, but here, as in other sections, the author seems to stop a little short of making a complete synopsis of current information. The same is true of the section on bacteriology. While the author gives much that is of value, he wisely did not attempt to write a textbook of bacteriology. This chapter contains much useful information for routine work.

There is a very good section on poisons and foreign substances; likewise a brief discussion of tissue staining methods and museum specimen preparation. The book closes with an outline of staining solutions, indicators, and reagents, a list of international atomic weights, and a table of normals.

We believe that this is an excellent book for physicians or technicians who are familiar to some extent with laboratory procedures. It is not to be considered a complete résumé of all laboratory procedures, nor is it a book of interpretation of laboratory findings. It accomplishes its purpose in giving the laboratory worker a useful manual of directions. The illustrations are well chosen and add greatly to the value of the book.

R. B. H. G.

INFANT NUTRITION. A Textbook of Infant Feeding for Students and Practitioners of Medicine. By William McKim Marriott, B.S., M.D., Professor of Pediatrics, Washington University School of Medicine; Physician in Chief, St. Louis Children's Hospital, St. Louis. Second edition. St. Louis: The C. V. Mosby Company. 1935. Price \$4.50.

As is well known, the author is especially interested in the biochemistry of physiologic processes, but in this book the clinical rather than the chemical side has been emphasized, for which we practitioners are grateful. The incorporation of acidosis, alkalosis and anhydremia in the chapters on diarrhea and vomiting is certainly an improvement, since the practitioner is so apt to regard the symptoms mentioned as satisfactory diagnoses. A chapter on allergy has been added but only that part of this subject which pertains to digestive disturbances has been considered. We agree that the usual skin tests are not very reliable from the diagnostic standpoint.

Judging from our own clinical experience, acute vomiting in the infant very rarely ends in alkalosis, probably due to a deficiency of the hydrochloric acid in the gastric juice; on the contrary, the symptoms of ketosis become manifest. This is especially true in acetonemic vomiting but is occasionally seen in cases of pyloric stenosis.

The emphasis on the preparation of acid milks for feeding infants is to be commended, especially in hospital practice. We cannot quite agree on the composition of the "standard formula." A mixture of whole lactic acid milk with 8 per cent of carbohydrates added is really a concentrated food, useful in many clinical conditions. It certainly lacks water and the thirsty young infant will take too much of it, with the common result of a putrefactive diarrhea. The standard formula should contain not only the necessary food elements but also sufficient water. We consider a mixture of two-thirds milk, one-third water with 5 per cent carbohydrates as fulfilling this requirement. This is true whether sweet milk, fermented milk, or evaporated milk is used.

We know of no other work on infant nutrition which combines our knowledge of physiological chemistry and everyday practice in such a comprehensive and satisfactory description. Every practitioner who is interested in children should read and be familiar with the contents of this book.

J. Z.

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THE PATHOGENESIS OF CAVERNOUS SINUS THROMBOSIS

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According to Eagleton,¹ Abercrombie, in 1818, first described thrombosis of the cavernous sinus from autopsy findings. In 1821 Duncan also noted this at autopsy. Clinically, Vigla first described the condition in 1839. Since that time many observers have described thrombosis of the cavernous sinus. O. Jason Dixon,² reporting ten cases of cavernous sinus thrombosis in 1926, states that at that time there were approximately three hundred cases reported in the literature. However, since autopsies have become a common procedure the thrombosis of the cavernous sinus has been found to be a much more frequent occurrence than was formerly believed.

ANATOMY

The cavernous sinus is unique in that it is divided by interlacing trabeculae and contains tissue that is comparable to the spongy tissue of corpora cavernosa of the penis.³ Like all blood sinuses in the skull it is formed by a separation or division of the two layers of the dura and lies on the lateral aspect of the body of the sphenoid bone in close proximity to the pituitary body. It is connected to the opposite sinus both anterior and posterior to the pituitary body by the intercavernous venous plexus or the circular sinus. Anteriorly it receives the drainage from the face through the ophthalmic veins and

posteriorly it terminates in the inferior and superior petrosal sinuses.

PHYSIOLOGY

There is some question regarding the physiology of the cavernous sinus, but it is thought to have some relation to the maintenance of the intracranial blood pressure in relation to respiration.³ And this view is somewhat substantiated by the presence of erectile-like tissue within the sinus.

DIAGNOSIS AND COURSE

The diagnosis of the thrombosis of the cavernous sinus is the clinical interpretation of a rapidly developing sequence of events. The original lesion generally presents itself as an innocent furuncle or staphylococcal infection of the skin in the so-called danger area of the face. If the body defenses which are the interpretation of the host's immunity are competent the lesion will be localized by the formation of a leukocytic wall. However, if the organism is extremely virulent and the immunity of the host is low, there will be an extending thrombosis of the smaller venules and the thrombosis will extend to the larger veins with an associated brawny edema and a rapidly forming thrombophlebitis of the larger veins, finally emptying through the ophthalmic vein into the skull.

The diagnosis of cavernous sinus thrombosis can only be definitely established when the process has already entered the skull. It is true that a rapidly developing thrombophlebitis of the face, associated with edema, may be regarded as a potential cavernous sinus thrombosis, but the actual pathological condition cannot exist until intracranial manifestations are evident. In reality, we can say that when we speak of cavernous sinus thrombosis, we regard the septic thrombosis of the cavernous sinus as but the sequel of a thrombosis of the veins of the face and is not a true thrombosis but a thrombophlebitis.

It is not the purpose of this treatise to consider all the various conditions by which the

We are indebted to Arthur E. Hertzler, Surgeon in Chief to the Agnes Hertzler Memorial Hospital, Halstead, Kansas, for pathological counsel and the production of the microphotographs contained in the article; Frederick C. Narr, Pathologist, Research Hospital, Kansas City, Mo., and Emsley T. Johnson, Pathologist, St. Joseph Hospital, Kansas City, Mo., for pathological counsel; Ralph E. Duncan, Pathologist, Kansas City General Hospital, for the use of his laboratories; and to our medical confreres in Kansas City, Mo., for the opportunity to review and observe their private cases noted in the tabulation.



Fig. 1. D. P., female, aged 13. Admitted to hospital April 7, 1935, with right cavernous sinus involved. Died April 9, 1935. Patient given a total of 100 cc. of staphylococcus antitoxin. Antihemolytic titer rose from zero before administration of antitoxin to 1 to 16 seventeen hours after administration of last dose. Spinal fluid and blood culture antemortem positive for *Staphylococcus aureus hemolyticus*.

cavernous sinus may be involved by a thrombophlebitis, but we wish to limit ourselves to those cases of cavernous sinus thrombosis secondary to infections in the danger area.

Needless to say, theoretically and actually, the dural blood sinuses may be thrombosed in several ways. Infection may take place following a skull fracture or by inflammatory erosion of the cerebral bony wall; also by way of the special regional pathways such as the olfactory perineural sheaths, the pial sheath of the optic nerve, and the pia-arachnoid membrane which supplies the covering of the auditory and vestibular nerves and through ductus endolymphaticus connecting the endolymphatic space of the labyrinth with the dura mater in the posterior cranial fossa. In cases of pyemia or septicemia, it is theoretically possible for the micro-organisms to be arrested in the blood sinuses of the dura and a thrombosis result. In the great majority of cases the micro-organisms are lodged in the smaller pial arteries and cause abscesses or purulent meningitis. In the cases of the anterior type, the thrombosis is usually by way of the smaller veins into successively larger veins until the dural blood sinuses are involved.

Excluding the embolically deposited and the retrograde types of cavernous sinus thrombosis subsequent to otitic disease and the thrombosis of the intracranial blood sinuses by extension from the paranasal air sinuses and limiting our observations to the thrombosis of the cavernous sinus secondary to the infectious processes generally, a furuncle that occurs in the so-called danger area of the face, the symptoms produced are characteristic, and once ocular signs are manifest the diagnosis is established. The symptoms before the ocular signs are noted develop with extreme rapidity. From the local area involved there is a rapid extension of redness and edema associated with a thrombosis of the veins. The smaller venules are first involved and the process rapidly spreads to the larger vessels draining into the facial vein. In many cases these larger veins can be felt under the examining finger as cord-like structures lying imbedded in the edematous area. Unless the original lesion is in the midline the swelling and discoloration are unilateral at the onset. The homolateral eye is involved with the extension of thrombus in the cavernous sinus and within twenty-four to thirty-six hours the contralateral eye usually becomes involved. This causes edema, discoloration and the thrombosis of the vessels of the other side of the face due



Fig. 2. Rabbit's back injected with staphylococcal toxin intracutaneously. Note the ulcerations. These areas of necrosis of skin are noted within an hour after injection.

to the stasis of blood by the occlusion of the opposite cavernous sinus through its liberal anastomosis inside of the skull by way of the circular sinus. The proptosis, in our experience, generally precedes the fixation of the eyeball. Meningeal signs rapidly develop with soiling of the spinal fluid as indicated by high cell count. Such a spinal fluid, in the great majority of cases, gives a positive culture for the staphylococcus and also the blood culture is positive in a large percentage of cases.

That cavernous sinus may be thrombosed by organisms other than the staphylococcus is quite possible and unquestionably does happen. As we have previously reported,⁴ it has been our experience that in the anterior type of cavernous sinus involvement, it is usually preceded by a furuncle or a staphylococcal infection in the so-called danger area with the extension of the thrombus to the cavernous sinus of the same side and a later extension of the thrombus in the cavernous sinus to the opposite side through the intercommunicating sinus. Therefore, one is forced to associate this involvement with the growth of the staphylococcus. Pathologically, in order for a thrombus to form inside of a vessel, three factors must interplay; namely, there must be (1) damage to the intima of the vessel wall; (2) a change in the coagulability of the blood plasma; (3) a slowing of the blood stream.

Anatomically, the cavernous sinus is a widened part of the venous blood channel which is divided by trabeculations. The widened channel and the spongy nature of the sinus both serve to retard the blood flow, consequently the hydrodynamics and lack of valves favor blood flow retardation.

In 1903 Loeb⁵ called attention to thrombo-kinase-like substance which was associated with



Fig. 4. Cross section of rabbit's ear removed 120 hours after injection. Ear on left was injected with .5 cc. of staphylo-toxin with stasis for five minutes. Note the tremendous edema. This ear weighed 48 grams on removal. Ear on right with .5 cc. of culture media with stasis for five minutes. No gross or histological change is noted. This ear weighed 20 grams on removal.

the growth of staphylococci. Gross⁶ also has called attention to this plasma coagulating substance associated with staphylococcal filtrates. We have been able to decrease the time of coagulation of citrated blood plasma by the addition of the staphylo-toxin.

In the experimental animal one is impressed by the rapid destruction of tissue when the staphylo-toxin is injected intracutaneously. The subsequent ulcers are noted within an hour and the tissue appears as if autolyzed. If the toxin is injected intravenously into the marginal vein of the rabbit's ear with a stasis for five minutes, within an hour the injected ear becomes discolored, edematous, and blebs form and the ear appears as if there has been a cataclysmic change in the circulation of the part. The ear also shows gross change of an inflammatory nature. If the ear of the experimental animal is removed, one sees upon cross section the tremendous edema of the ear treated with staphylo-toxin. This ear will sometimes weigh as much as two and one-half times the normal ear. If a sufficient time has elapsed after the injection of a potent toxin, the veins of the ear, upon histological study, will show changes indicating injury to the intima of the vessel with thrombus formation. Not only are the veins affected, but the surrounding tissue is very edematous and disorganized. This means that a potent irritating substance has been injected into the circulation. The dosage of toxin must not be too overwhelming or the rabbit will die before any histological change can be noted. If the toxin is previously neutralized by antitoxin, no such change will be noted in the injected ear. The latter is also true if the culture media alone is injected in the control ear similarly treated. Simple stasis of the control ear produces no discernible gross or histological changes.

In a series of twenty-five toxin-injected ears, at various intervals after injection and serially



Fig. 3. Rabbit 21. Right ear injected with .5 cc. of staphylo-toxin with stasis for five minutes. Left ear injected with .5 cc. of staphylo-toxin which had been previously neutralized with antitoxin in vitro. Right ear is edematous and shows bleb formation and is so heavy that the rabbit is unable to hold it up. The left ear shows no gross change. Photograph taken twenty-four hours after injection.

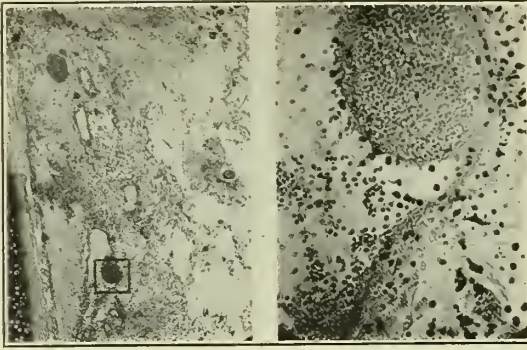


Fig. 5. Low and high power microphotograph of ear of rabbit No. 21. This ear was injected with .5 cc. of staphylo toxin and was removed thirty-three hours after injection. (Magnified 70 and 450.)

sectioned, the following report is the pathological interpretation of this process. (Fig. 5.)

The intima of the vessel shows swelling of the lining endothelial cells and the blood vessels are everywhere intensely engorged and dilated and round balls of red cells are seen clinging to the walls of the dilated veins covered by a rather structureless limiting membrane of fused platelets or granular fibrin. The vessel wall upon which this spherical mass rests has lost its staining properties and is not being invaded or repaired by new or potential fibroblasts. (Fig. 6.)

Here the entire structure of the ear has been deformed by infiltrating serum and inflammatory cellular products. The cells for the most part are unidentifiable. This is seemingly due to some toxic rather than chemotactic influence. No eosinophiles are present and fibroblasts are not making an attempt to repair the damage already done. In one field a widely distended blood channel shows the beginning of an adherent blood platelet clot lying upon a necrotic area of the vessel wall. The free surface shows a small swarm of leukocytes of nondescript types.

All the affected sections of this series indicate a severe and destructive reaction to a toxic agent rather than a direct bacterial invasion of the tissue involved.

SUMMARY

We do not deny that cavernous sinus thrombosis that occurs following infections in the so-called danger area cannot be produced by organisms other than the staphylococcus. We feel that it is possible for any organism producing a soluble exotoxin or containing an endotoxin to produce cavernous sinus thrombosis. However, in seven cases under our observation, six of which came to autopsy and bacteriological studies done, the staphylococcus was isolated in all instances. The filtrates produced

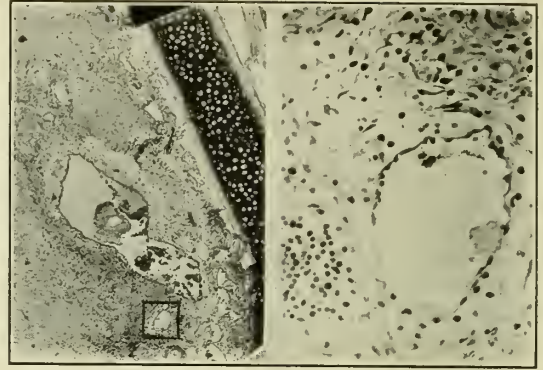


Fig. 6. Low and high power microphotograph of ear of rabbit No. 25. This ear was injected with .5 cc. of staphylo toxin and was removed 120 hours after injection. (Magnified 70 and 450.)

from these cases, in which a positive culture was obtained either from the blood or spinal fluid, showed the property of hemolyzing red blood cells, of producing necrosis when injected into the back of an experimental animal, and forming thrombi when injected in the marginal veins of the ear of a rabbit. From our experience, it is our opinion, that the staphylococcus toxin has the property to enhance the coagulability of the blood and produce marked changes in the intima of the veins, associated with edema and changes in the surrounding tissue. With such extensive vascular pathology produced by the filtrate or toxin alone, we must look upon this filtrate as a toxin elaborated by the metabolism of the bacteria. Therefore, the thrombosis of the vessels would be enhanced by the presence of the organisms and production of their toxin *in vivo*.

That the staphylo toxin is made up of many factors is still to be adjudicated. By many workers it is thought to contain at least five components; viz., a hemolysin, a leukocidin, a necrotoxin, a plasma coagulating substance and a lethal factor. However, all these factors of the staphylo toxin are neutralized by the same antitoxin.

From the fact that the staphylococcus toxin is bound by staphylococcus antitoxin *in vitro*, the question immediately arises as to the therapeutic use of antitoxin in the attempted treatment of cavernous sinus thrombosis.

When the clinician has the opportunity to observe, at postmortem, the cavernous sinus filled with a septic thrombus and the contiguous portion of the sphenoid bone and the hypophysis to be partially liquefied by the lytic influence of the toxin together with the coexisting evidence of a widespread septicemia with innumerable abscesses in the lungs, septic infarcts in the kidneys, and frequently thrombi in the larger vessels throughout the body, he is overwhelmed

Table 1. *Tabulation of Cases Reported*

Pt.	Sex	Age	Site of Original Lesion	Postmortem Findings	Bl. Culture	Sp. Flu. Culture	Local Lesion	Courtesy of	Filtrates	
									Dermo-necrotic	Hemo-lytic
OF	M	42	Boil on right side of nose	Right cav. sinus thrombosis, acute leptomeningitis, multiple abscess of kidney and lung, embolic pneumonia, acute fibrinous pleurisy.	Staph	Staph		Drs. Ayers and Miller	+	+
KP	F	37	Pustule in left vestibule	Cav. sinus thrombosis, hem. infarcts of lung, acute hemorrhagic nephritis with cast.	Staph		Staph	Stookey and Scarpellino	+	+
MN	M	63	Pustule on temple	Cavernous sinus thrombosis.	Staph			Dr. E. T. Johnson	+	+
DP	F	13	Pustule on right nares	Cav. sinus thrombosis, staph. septicemia, multiple abscess of lung.	Staph	Staph	Staph	Stookey and Scarpellino	+	+
PH	M	3	Pustule on right temple	Acute staph. cellulitis of face with infected jugular thrombosis of right jugular vein, multiple abscess of lung and kidney, left empyema, mural endocarditis.	Heart Blood P. M. Staph		Staph	Dr. P. J. O'Connell	+	+
VM	F	13	Pustule on right lower lip	Cavernous sinus thrombosis.	Staph	Staph		Drs. Johnson and Quistgard	+	+
FP	M	39	Left otitis media	Cavernous sinus thrombosis.		Staph	Staph	Dr. A. E. Eubank		
WW	M	31	Pustule in right nasal vestibule	Cavernous sinus thrombosis, septic thrombus of lat. sinus, degeneration of liver and kidney.			Staph	Dr. J. Webster		
MR	F	12	Pustule on right side of chin	Purulent thrombophlebitis of right cav. sinus and right jugular vein, pyemia, arteromedias-tinitis, phlegmon of face, multiple abscess of lung and kidney, bilateral fibropurulent pleurisy, parenchymatous degeneration of heart and liver.	Staph			Stookey and Scarpellino		
HH	M	46	Tooth extraction	Cavernous sinus thrombosis, circular sinus thrombosis.	Staph and Strep			Dr. J. J. Dorsey		
PW	M	50	Pustule in right nasal vestibule	Bilateral cavernous sinus thrombosis.		Staph		Stookey and Scarpellino		
JA	F	44	Fever blister on lip	Cellulitis of face with cav. sinus thrombosis, multiple septic infarcts of lung, miliary abscess of kidney.	Staph			Drs. Sanders and Carr		
AD	F	62	Swollen left eye	Ophthalmitis, thrombosed cav. sinus and ophth. vein, edema of head and neck, chr. myocarditis, septicemia.		Staph and Strep from Oph. V. P. M.	Staph and Pneumo	Dr. LeMoine		
PF	F	25	Small pustule on left cheek	No autopsy.	Staph			Dr. C. W. Jones	+	+
JN	M	38	Small pustule on left temple	No autopsy.			Staph	Walker and Myers		
CW	M	55	Boil on corner of upper lip	No autopsy.			Staph and Strep	Dr. Koch		
CK	M	65	Pustule on nose	No autopsy.			Staph and Strep	Dr. M. J. Owens		

Pt.	Sex	Age	Site of Original Lesion	Postmortem Findings	Bacteriological Findings	Courtesy of	Filtrates	
							Dermonecrotic	Hemolytic
HK	M	5	Abscess of gum opened	Fibropurulent meningitis with cav. sinus thrombosis, osteo. of lower jaw, acute suppurative splenitis with abscess, thrombosis of pancreatic vein, parenchymatous degeneration of myocardium.	Postmortem smears, gums show Vincent's staph. and strep., pus from frontal lobe, Gram. + dip. with capsule, cavity—left mandible, Gram. + dip. septic thrombus of cavernous sinus Gram. + dip. lt. lat. cerebral sinus Gram. + dip.	Dr. Nunn		
AG	M	4	Gums lanced	Purulent basilar meningitis, purulent phlebitis of cavernous sinus.	No smears or cultures.	Dr. Neff		
FL	M	23	Boil on left cheek	No autopsy.	No smears or cultures.	Dr. P. J. O'Connell		
MI	F	33	Small pustule of left upper lip	No autopsy.	No smears or cultures.	Dr. A. B. Jones		
GL	M	50	Boil in right eye brow	No autopsy.	No smears or cultures.	Stookey and Scarpellino		

with the hopelessness of any therapeutic procedure.

It may develop that the therapeutic possibilities of antitoxin are prophylactic. Dolman⁷ reports a case of cavernous sinus thrombosis that lived thirty days from the onset, and he attributes the unusual length of time to the administration of staphylococcus antitoxin. Through the courtesy of O. Jason Dixon, we have observed a case that lived twenty-eight days without specific treatment. It is our opinion that once this toxin has damaged the vessel wall no amount of antitoxin can repair the damage and the spreading thrombophlebitis will progress. It may be possible that the staphylococcal infections associated with brawny edema which show no evidence of a defensive leukocytic wall, would be benefited by the administration of large amounts of commercial antitoxin. This is at best highly speculative. It is supported by the laboratory evidence, that when toxin and antitoxin are united in vitro and injected into the veins of the experimental animal, no change is apparent in the intima of the vessels and no thrombi form. The protection conveyed to the laboratory animal is complete.

We have had one opportunity to treat a case of cavernous sinus thrombosis of staphylococcal etiology with staphylococcus antitoxin. At the time of the administration of the antitoxin the cavernous sinus was definitely involved. It is to be recalled that the normal individual carries in his blood serum a titer of antitoxin against the staphylococcus. When staphylococcus antitoxin is administered to the laboratory

animal, and the immune titer is obtained subsequent to the injection (by the method of Parish⁸), the titer may rise so high as two hundred times that of the normal antitoxic content of the blood serum. In this particular instance, after the administration of large amounts of commercial staphylococcus antitoxin, the immune titer was enhanced to two times that of normal. The original reading showed no natural antitoxin. This indicates to us that there may be a period in staphylococcus septiciemias in which free toxin circulates in the blood and fixes itself irreversibly to tissue cells particularly the heart, liver and kidneys and causes irreparable damage that no amount of added antitoxin can influence. It is obvious that the administration of antitoxin can only neutralize the circulating toxin not bound to tissue cells.

CONCLUSION

No definite conclusions can be drawn from such a small series of cases. Experimental evidence in laboratory animals is introduced which suggests that the toxin filtrates elaborated by the growth of staphylococci are a potent factor in the production of cavernous sinus thrombosis. In our experience cavernous sinus thrombosis, of the anterior type, is almost invariably associated with a staphylococcal infection although cultures may reveal other bacteria present.

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THE PATHOLOGY OF SILICOSIS AND SILICOTUBERCULOSIS

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Silicosis is a condition resulting from the reaction of the reticulo-endothelial system to the presence of silica, the reaction being essentially the proliferation of fibrous tissue. The lungs are the organs chiefly affected as silica enters the body by inhalation.

If silica particles, usually less than five microns in diameter, are inhaled in sufficient quantities a certain number of them get past the respiratory defenses and reach the pulmonary alveoli. Here they are phagocytosed by the septal cells or alveolar phagocytes, the macrophages of the lung. These cells are attached to the alveolar walls but are capable of becoming free. In the free state some are expectorated; others pass through the alveolar epithelium into the pulmonary lymphatics. The silica is then carried to the hilus glands. If the quantity is not too great the lungs may become entirely cleared of the dust. In thirty-five autopsies, four with short exposures to silica dust showed evidence of silicosis in the lymphatic glands only; no nodules were found in the lungs.

From the hilus nodes the silica is carried to the tracheobronchial glands and the other gland groups in the chest, thence to the supraclavicular glands and the glands of the upper abdomen, the perigastric, peri-aortic, peripancreatic, biliary and retroperitoneal glands. In a fairly high percentage of cases nodes in the hilus of the spleen are involved. In four cases we have found nodules in the spleen itself. We have never found them in the liver.

The silica is probably carried throughout the lymphatic distribution just described by relays of cells, but a certain amount of it is deposited along the way the highest concentration being

in the hilus glands. Wherever the particles are deposited by the death and degeneration of the phagocytes that are carrying them some probably remain and the rest are picked up by macrophages and carried on. The silica that remains undergoes slow solution in the alkaline tissue fluids. This solution is toxic and stimulates the reticular cells of the reticulum of the lymphatic nodes to proliferate. The more highly specialized cellular elements die. The first change is an increased prominence of the reticular framework of the gland. Clumps of the cells, which are indistinguishable from early tubercles, are formed about the offending material. As a matter of fact the same type of cell forms both tubercle and the silicotic nodule as Lemon has shown. The general architecture is the same. There is a tangled skein of cells in the center with more orderly layers of cells about the periphery much as a cross section of a ball of twine would appear. But the subsequent course of events is different in each case. In the silicotic nodule the cells are transformed into fibroblasts and the nodule becomes fibrous the arrangement of the fibres being the same as that of the original cellular reticulum.

As the silicotic nodule grows, fibres in the center become dense and hyaline and all the cellular elements die. Nuclei are found only at the periphery. As the nodules enlarge contiguous nodules coalesce forming larger aggregations. Fibrosis also occurs in the interstices between the individual nodules and eventually the lymph node becomes entirely fibrous with no cellular elements, not even fibroblasts, remaining.

Calcification often occurs in such densely fibrosed glands sometimes purely as a retrogressive change, in my opinion, and not always as the result of tuberculosis, as some investigators think. Because of the nodular structure of the silicotic glands, the calcium which is deposited between the layers of fibrous tissues in and about the nodules casts shadows on the roentgen ray plate which are entirely different from the calcification seen in the ordinary tuberculous gland. They appear as ovoid shells with multilocal centers.

Before silicosis has progressed far, tuberculosis usually appears as a complication. The inflammatory reaction resulting from this infection mats the mediastinal glands together and to the neighboring structures and soon there is a frozen mediastinum.

As fibrosis in the lymphatics progresses the drainage of lymph from the lungs is impeded and these organs are no longer able to rid themselves of dust particles. Furthermore, the constant inhalation of dust damages the mucous membrane of the respiratory tract and its cilia and more dust is able to reach the pulmonary

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From the Jasper County Tuberculosis Hospital, Webb City.

alveoli. The same nodular fibrosis that I have described above then proceeds in the lymphatics within the lungs. Nodules form first near the hilus and then out in the pulmonary parenchyma. Thus in uncomplicated silicosis the roentgen ray plate shows the nodules radiating out from the hilus fanwise, the larger nodules being near the hilus and the smaller ones at the periphery. The apices and costophrenic angles are usually clear. As the lymphatic channels in the lung become blocked the dust can no longer enter the lymphatics but enters the alveolar walls and nodules are formed in the parenchyma of the lung.

The development of fibrous tissue throughout the lymphatics soon damages the elasticity of the lungs. In addition to the lymphatic fibrosis there is thickening of the fibrous supporting framework of the lung. This interstitial fibrosis is probably partially due to silica but an additional factor is undoubtedly the impaired nutrition of the pulmonary parenchyma. The lymphatics being perivascular the blood vessels are constricted and many of them obliterated altogether by the proliferation and contraction of the fibrous tissue. As in other organs when the circulation is inadequate the more highly specialized cells die and the fibrous elements increase.

Emphysema is universally present in silicosis of any significant degree. Poorly nourished alveolar walls break down, the involvement being greatest at the periphery of the lung. Small blebs are formed in moderately advanced cases while in far advanced cases enormous bullae are often seen. Contributing to the emphysema are the diminished pulmonary elasticity together with increased respiratory effort which eventually fix the lungs in the position of inspiration. Another factor is compensatory dilatation of comparatively unfibrosed areas of lung to compensate for fibrosed contracted areas.

The pathological picture of silicosis is considerably modified by two factors. One of these is the presence of other types of dust. Rarely is pure silica inhaled. Of the other types of dust, carbon is the most important. It may be present in small quantities only or may be present in quantities sufficient to modify the picture significantly. In two of our cases, both lead and zinc miners, larger quantities of carbon are present. In one, the lymphatics are packed with carbon dust and there is very little fibrous reaction. In the other case there is less carbon and nodular fibrosis has occurred, but the characteristic silicotic whorls are not seen and the fibrous tissue is not so dense and collagenous. In the hilus glands of both cases fibrosis more characteristic of silicosis was

found. In neither of these cases were tubercles found.

The other great factor, which very markedly modifies the clinical and pathological features of silicosis, is tuberculosis. Silicosis uncomplicated by tuberculosis is uncommon clinically; pathologically it is rare. In five of our cases in which the causes of death were diseases entirely unrelated to silicosis or tuberculosis, and in which the amount of silicosis was too small to be diagnosed clinically, both silicotic nodules and tubercles were found in the lymphatics draining the lungs. In two of the cases tubercles were found in the lungs. With the exception of the cases with predominating anthracosis, in none of our cases in which silicosis was demonstrable roentgenologically was evidence of tuberculosis absent on pathological examination. One case had but one positive sputum over a period of seven years and we were inclined to attribute that one to an error. We felt that at autopsy we at last would find a case of pure silicosis, but we were disappointed.

The presence of silica in the tissues seems to provide a favorable medium for the development of the tubercle bacillus. But the fibrous tissue caused by silica tends to hold the development of tuberculosis in check. Thus we have two opposing tendencies. Which one will dominate in any particular case depends upon a variety of factors, such as the quantity of silica inhaled, the dosage and virulence of the bacilli, the resistance of the host, allergy and probably the ability of the individual to form fibrous tissue.

There are cases in which silicosis as a disabling disease is of no importance but in which the complicating tuberculosis is extremely virulent and rapidly fatal. At the other end of the scale are cases in which the combination of silicosis and tuberculosis causes extreme pulmonary fibrosis but in which the tuberculosis is very slowly progressive or may occasionally appear to remain stationary over a period of years.

In some cases areas of caseation are seen surrounded by a capsule of fibrous tissue which is studded with silicotic nodules. From the appearance one would say that the silicotic tissue had aided in the defense of the lung against the invasion of tubercle bacilli. We have two specimens showing this situation. Apparently these cases suffered no harm from their tuberculosis. Both of them died of other causes.

The development of tuberculosis about silicotic nodules renders the borders of their roentgen ray shadows more fuzzy and indistinct. The nodules are less uniform in size and distribution. Large nodules are seen at the periphery of the lung which is not the case in uncomplicated silicosis.

The combination of silicosis and tuberculosis causes degrees of pulmonary fibrosis that are never seen in silicosis alone. In uncomplicated silicosis the nodules remain fairly discrete. Adjacent nodules in the lymphatics coalesce but this process is limited. The fibrosis of the intervening pulmonary tissue is not sufficient to draw the nodules together and bind them into large masses. However, with a complicating tuberculosis of the chronic proliferative type fibrosis and contraction of the pulmonary parenchyma mats the nodules together into large fibrous masses. Entire lobes often become carnified and functionless. However, the upper and middle lobes are the ones usually affected. We have never seen a lower lobe with the extensive involvement so often seen in the upper lobes.

Such fibrotic lobes undergo marked contraction. If there are no pleural adhesions they retract toward the hilus and form roentgen ray shadows simulating large mediastinal masses. The lower lobes undergo compensatory expansion to fill the chest cavity. It is not uncommon to find the lower lobe forming the apex of the lung. If the lobe is adherent to the chest wall its contraction pulls the hilar structures upward and shortens the upper half of the thorax, the rib interspaces becoming narrowed. Large dense shadows are seen in the roentgen ray plate in the upper part of the chest with emphysema in the bases.

These areas of massive fibrosis are usually excavated; as a matter of fact we have had but one case which had no cavities. However, the cavities are not of the same character as the ordinary chronic tuberculous cavity. The silico-tuberculous tissue appears to crumble away leaving irregular cleft-like cavities from which small fissures radiate into the surrounding tissue. It has been suggested that such areas undergo autolytic liquefaction because of their poor blood supply, but the necrotic tissue is definitely caseous and it is probable that the tubercle bacillus is responsible for its disintegration.

In spite of extensive excavation the sputum of a patient with massive fibrosis may remain negative. It is obvious that cough can develop no expulsive power in such rigid lobes. Furthermore, stenosis of bronchi is a fairly frequent finding.

The vascular changes in the silicotic lung are important and have not received sufficient attention. As has already been mentioned the pulmonary fibrosis is largely perivascular and many blood vessels are constricted and obliterated. Many vessels in silicotic areas show dense hyaline fibrosis of their walls. Others show

marked intimal proliferation and medial thickening. It is possible that silica through its irritating property is capable of causing proliferation of the endothelial cells. In two cases recently autopsied we have found organizing thrombi in branches of both the pulmonary artery and pulmonary vein.

As a result of these blood vessel changes the vascular bed of the lung is greatly reduced and hypertension in the pulmonary circuit results. This hypertension is evidenced clinically by an accentuated second pulmonic sound and electrocardiographically by right ventricular preponderance. It seems reasonable that increased tension in the pulmonary circuit results in intimal proliferation and medial thickening through the same mechanism that causes sclerosis in peripheral hypertension. In support of this view we are able to find thickened vessels in some cases in the periphery of the lung outside the areas of greatest silicotic involvement.

Pulmonary hypertension puts an increased load on the right ventricle. At the same time the heart muscle must work with an inadequate supply of oxygen. Pulmonary fibrosis diminishes pulmonary ventilation; emphysema decreases the oxygenating surface area of the alveoli and the vascular changes lessen the volume of blood flowing through the lung. Therefore the arterial blood is incompletely oxygenated.

Hypertrophy of the right ventricle is often seen as a result of the increased work. The hypertrophy is so marked in some cases that the wall of the right ventricle is almost as thick as that of the left. Dilatation of the chamber occurs to such a degree in some cases that the heart is distorted and the relationship of the ventricles is reversed. The apex of the heart is formed by the right ventricle and the termination of the interventricular sulcus is on the left border of the heart.

But in many cases as a result of the inadequate supply of oxygen degenerative changes and fibrous replacement of degenerated muscle fibres rather than hypertrophy are found. The fibrosis cannot be correlated with the degree of coronary sclerosis present. In most cases the coronary vessels especially those of the right side of the heart are dilated rather than narrowed.

Since the blood flow through the lungs is reduced, less blood reaches the left ventricle and therefore it has less work to do. Consequently, its wall is thinner and its chamber smaller than normal in many cases. The systemic blood pressure in silicotics is nearly always low, the average systolic reading being 110 millimeters of mercury.

As a result of the vascular and cardiac changes right heart failure is one of the commonest causes of death in advanced silicosis.

Metastatic tuberculous lesions have been more common in our 35 autopsied cases of silicosis than in our cases with simple tuberculosis. We have had four cases of acute miliary tuberculosis, three cases of acute tuberculous pericarditis with effusion, three cases of acute tuberculous empyema and four cases of acute fulminating pulmonary tuberculosis as the result of bronchogenic dissemination. Tuberculous enterocolitis has been a common complication.

The extensive involvement of the tracheo-bronchial and mediastinal lymph nodes is probably responsible for the frequency of metastases. The hard fibrocaseous glands are intimately bound to the bronchi and pulmonary vessels. Fistulous tracts in such situations result in the spilling of caseous material either into the bronchi or the blood stream.

The esophagus is often compressed and distorted by masses of glands. Traction diverticulae the result of contracted fibrotic glands are often found. Not infrequently the wall of the esophagus is found to be ulcerated completely through.

Bronchiectasis, although it is said to be often secondary to fibrosing disease of the lungs, was not found to be a prominent feature in our cases. It was found in a marked degree in but one case.

It is our impression from what we have seen of silicosis at autopsy that it is capable of causing a moderate degree of pulmonary damage which, however, is usually not sufficient to cause death. Tuberculosis is almost universally a complication of silicosis and patients who die as a result of their pulmonary disease either die from tuberculosis or from the effects of extreme fibrosis of the lungs which is always the result of silicosis and tuberculosis in combination.

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THE RATIONAL TREATMENT OF SINUS DISEASE

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In the rational treatment of sinus disease two things are to be considered; namely, the conservative and the so-called radical treatments. In the last decade it might be said that our knowledge of this problem has swung back and forth like a pendulum, the devotees of the conservative methods at loggerheads with the men who propound and practice radical procedures. With the better understanding of this problem in the last few years, and with the great amount of research work that has been done upon the physiology, bacteriology, anatomy and pathology of the nasal accessory sinuses, the otolaryngologist has had to revise his treatment as the most good is accomplished in the great percentage of cases by merging the conservative with the radical. The problem of relief in sinus disease is a challenge to each of us to surpass our previous efforts if the prejudice of the general practitioner and the laity is to be amended.

Most patients who seek relief from the discomforts of sinus disease do so because of pain. The other classes seek relief from some systemic manifestation of their sinus disease. In the past sinus infections have been spoken of and classified as the acute and chronic. This classification is essentially wrong. I do not think I have ever seen an acute primary infection of a nasal accessory sinus. Sinusitis resembles many other diseases in that as it is acquired in early childhood either from an early infectious disease of childhood or acute coryzas, etc., the primary infection may pass unnoticed. After the first infection the sinus then becomes quiescent and returns to what the doctor and patient think is normal. Macroscopically this change that takes place in the sinus lining cannot be demonstrated but, if tissue is taken from the sinus at the quiescent stage, changes can be demonstrated microscopically in the glands and structure of the mucoperiosteum lining these cavities. It is reasonable to think that after numberless of these attacks from childhood to adulthood the person becomes the common variety of sinus patient who frequents the otolaryngologist's office. Repeated acute noses plus bad nasal anatomy predispose the patient to these various stages and this sinus condition can produce as much disability as a limited tubercular lesion of the lung.

Many persons have been labeled neurosthenic and passed from one doctor to another without the localized, infective process hidden in one of

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the accessory nasal sinuses being found. The patient thinks, as the physician tells him, that he has just a little catarrh from frequent weather changes. So often the opening statement from the patient as he comes into the treatment room is as follows: "Now, Doc, I don't want any cuttin' on my nose because I have heard when you once start cuttin' you never get through—just one operation after another. So just find out what is wrong and give me some treatments as I have had these attacks before and always get well." In other words, an axiom heard throughout the country is this: "Once a sinus operation, always a sinus operation." I have heard this statement innumerable times which, of course, gives one food for thought. Now, just how could such an impression fix itself so firmly on the patient's mind unless there was some truth in it or some fault or a wrong impression given from the doctor to the laity? I think, after some years of observation, that this very important problem should be approached in a rational and common sense manner. After all, medicine is based primarily on the applications of sound principles arrived at by experimental and clinical facts plus straight thinking. All other aids such as laboratory and roentgen ray cannot be accepted in their entirety until you have made them agree with your tentative diagnosis at which you have rightly arrived by careful examination and clinical history. A patient with a high degree of sinus disease but with no marked constitutional reaction or disability will not appreciate surgical intervention although it may be theoretically indicated. On the contrary, a patient with only a minor degree of sinus trouble but with arthritis, cardiac or nephritic, or other disability may fail to improve with all efforts except by surgical intervention.

The average physician hopes when he attends a medical meeting that he will take back some few concrete facts that will agree with his thoughts along the same subject. He feels amply repaid if this is the case. I shall endeavor to give you a rational, sane way to treat the aforementioned problem.

I. A careful history from the patient.

- a. The onset of the attack.
- b. Subsequent attacks; pain and temperature; localization of pain in the different attacks.
- c. Duration of attacks.
- d. Amount, character and color of discharge; repeated colds; other aggravating causes, seasonal; allergic.
- e. General health, previous operations, diet, etc.

II. Local examination with careful note made of the things observed in the nose, post-nasal space, throat and teeth.

III. Roentgen ray plates and laboratory check.

If the history is such that you might be suspicious of some ophthalmological dysfunction, the eyes should be examined. A careful summing up of the entire data should lead you to make a diagnosis.

Every sinus case does and will have aspects of a clinical entity and each should be treated as a separate problem by the otolaryngologist.

The next problem is to explain to the patient just the kind of sinus problem he has, what has taken place in the past from previous attacks, what he can expect in the future and what should be done at this time. In other words, tell the truth. Be honest with the patient even if he leaves you and goes to one of your colleagues who is a better back patter than you are. I have always found it advisable to tell the patient the absolute truth. Your records and findings tell only one story.

Now, as most people come in for chronic sinus infection only when they are having an exacerbation with pain, after your diagnosis is made you turn to the relief of the patient.

I. Local treatment.

- a. Small pledgets of cotton moistened with a solution of equal parts of neosynephrin emulsion $\frac{1}{4}$ per cent, cocaine 3 per cent, plus neosilvol 10 per cent, are packed between the middle turbinate and the posterior septum, also between the inferior turbinate and the anterior septum.
- b. Hot, slightly moist cotton mask placed over the painful area, usually frontal or maxillary, and the infra-red light applied for heat. This is best accomplished with the patient in the prone position with the head slightly lowered. Packs are removed after twenty minutes.
- c. Nose sprayed with a combination spray of equal parts of aqueous solution containing 10 per cent neosilvol and emulsion neosynephrin $\frac{1}{4}$ per cent. This cleans the nasal passages and postnasal cavities and the cilia are freed from their dried mucous and crusts and allowed once more to resume their protective mechanical action. Follow with a mild oil; throat swabbed with tincture of metaphin.

II. System for home relief.

- a. Codeine, aspirin and amidopyrine in capsular form given for discomfort and nervousness.
- b. All hard rubber atomizer and one ounce of emulsion of neosynephrin and neosilvol given for a fine spray to be used morning and evening.
- c. Gargle, sodium perborate.

It is obvious from laboratory findings that the patient will be out of balance, whether acid or alkaline. I might say that most chronic sinus patients tend toward acid concentration. They are handed a printed diet list that gives them the alkaline ash or acid ash, as they may require. Never prescribe a drastic laxative. Some mild agar preparation, mineral oil or milk of magnesia, fruit juices, water in quantity and organic or inorganic acids may be added to conform to the diet test. If patient is nauseated give glucose 50 cc., 25 per cent intravenously. Whether the patient remains at home or is sent to the hospital the relief of pain and a return to comfort is sought in a common sense application of the different aids at hand.

When this exacerbation of the chronic disease quiets down, and after a lapse of time of four to six weeks, the patient may return for his operative procedure. The patient should be educated during the time of his treatment as to what should be done, the type of operative interference and what benefits can be expected in the future. In other words, make this a partnership affair in which the patient assumes his share of the responsibility in getting well and remaining so.

PATHOLOGY

It is recognized that the accessory nasal sinuses open into and are a part of the nasal cavities. They are lined by slightly modified nasal mucosa which extended into them as they developed. Therefore, the mucous membrane of the sinuses usually partakes of the diseases and inflammations of the mucous membrane of the nose. Attacked acutely by bacteria, the tissues of the nose and accessory sinuses react in a more or less characteristic manner. The vessels become dilated; the tissues become engorged and profuse secretion takes place, both from increased activity of the glands of the mucosa and as a result of extravasation from the blood vessels. The congestion may become so active and the process so virulent that blood appears in the secretion, either from diapedesis or rhexis.

When drainage of the sinuses into the nose is sufficient, little accumulation takes place in them and the acute attack runs a mild course. Inflammation gradually subsides and the nose

and adnexa return to normal in a few days. In case drainage is inadequate a pathologic sequence follows, often ultimately leading to the establishment of chronic tissue changes. In the course of this, pain may be experienced whenever the pressure of discharge in the sinus becomes sufficient. Just how this pain is produced is not well understood. Sometimes it seems out of all proportion to the amount of discharge and may occur at a more or less distant point. Neuritis or neuralgia, or "reflex" are terms used to describe what may be only partly comprehended. Occasionally, local inflammation may develop to the degree at which abscess or perforation of one of the walls of the sinuses threatens. Such perforation of the bone is uncommon because of the blood supply to the outer bony wall.

Inadequate drainage may depend on the smallness of the ostia at best and they are not always placed at the most dependent part of the cavity. Though large enough under most circumstances, the swelling of their mucosal edge or the presence in the sinus of thickened tissue makes them insufficient to their task. Also, as important, is the freedom of the nasal chamber into which they drain. Lack of room in the nose to receive the discharge is as bad as inadequate ostia. The common causes of such wholly or partially occluded nasal chambers are deviation of the septum, adventitious tissue about the turbinates due to such factors as enlarged tonsils and adenoids or, possibly, to allergic irritation. In this connection must be mentioned the frequently described "vicious circle" that is established in sinus infection. When because of inadequate drainage the acute sinus infection fails to heal, the mucous membrane meets the situation in a characteristic manner. In response to repeated insult or irritation, the fibrous structures of the mucous membrane undergo hypertrophy. This is the important factor in the development of what is commonly known as polypoid degeneration and polypi. The change may take place to a degree limited only by the nasal and sinus cavities. This tissue is frequently demonstrated in roentgen ray pictures of the sinuses. Such tissue hypertrophy, occurring either in the nose or in the sinus, impedes the drainage and completes the "vicious circle." Such polypoid tissue, bathed constantly in secretions, tends to become edematous and "edematous fibroma" describes it histologically. The activity of the cilia, crowning the external layer of the columnar epithelium, may be affected by the virulence of the initial infection; they certainly are impaired in the later changes described. The overstimulated mucous glands are hypertrophic or cystic; furthermore, mucous membrane cysts contain-

ing pus may be formed by contiguity and are an important argument for those who believe that all the mucous membrane of the sinus should be removed when the sinus is operated on.

From examination of the nose, roentgen ray pictures, type of bacteriology, clinical findings, symptoms, etc., you decide the type of operation that will do the patient the most good. If conservative measures are to be instituted such as a window in an antrum, submucous resection or a realignment of an impacted turbinate, do this. If you are justified in advising the patient that he has a series of sinuses infected and that he should have a radical operation, make no bones about it. Tell him, also, the type of operation that you wish to perform for him should be one that the operator is the most skilled in. Most all nose and throat men are familiar with the conservative operative procedures such as taking down the lateral nasal wall or making a window in an antrum, submucous resections, taking care of cystic and impacted turbinates, uncapping of ethmoidal cells and intranasal frontal surgery, but most otolaryngologists are not so familiar with the more so-called radical external operations as performed by such leaders as Ferris Smith, Lynch, Sewell, Turnbull and Mosher. To me the technic of Ferris Smith holds out most hope of curing old sinus disease of the ethmal-sphenal-frontal. This combined with the Caldwell-Luc operation of the antrum eradicates a greater percentage of chronic sinus disease than most any other operation. It appeals strongly to the operator because of its safety under direct vision. This operation is best done under local anaesthesia with the patient in a sitting position. A small incision is made below the eye brow running down over the nasal plate above the lacrimal sac. The mucoperiosteum is elevated raising the lacrimal sac out of its bed, retracting the orbital contents and giving a full view of the ethmoidal cells. I will not go into detail about the technic of this operation but will discuss it later, if necessary. This is a modified operation of both Lynch and Sewell. Turnbull's trans-antral operation works nicely in the hands of a skilled operator taking care of the antrum, the ethmoidal labyrinth and the sphenoid. Suffice to say the otolaryngologist should choose his operation with reference to the amount of pathology at hand. I cannot stress too strongly the following:

(1) Combining the so-called conservative and the so-called radical treatment in an effort to relieve and satisfy the patient. (2) The importance of educating the general public about sinus disease. (3) Educating of each individual patient by the otolaryngologist on their particular sinus problem.

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GONORRHEAL VAGINITIS IN CHILDREN

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The treatment of gonorrheal vaginitis in children has always been unsatisfactory. The disease has at times been persistent until the time of puberty; the treatment has been an ordeal to the child as well as to the physician and parents. The first real difference and advance in treatment was with the use of 2 per cent silver nitrate in an ointment base as proposed by Gellhorn in 1920.¹ This simplified the treatment considerably and made it possible for the mothers to use the method at home, bringing the child in only for observation and smears. However, the duration of the infectivity was not greatly shortened and here also at times was a complete failure.

Several years ago Merck & Company was kind enough to furnish me with pyridium when it was first developed and it was used by me in a series of fourteen cases. It was used in an ointment base and certainly made the patients more comfortable, although it was far from ideal. About one third of the cases did not respond with negative smears although the remainder cleared up in from ten to twelve weeks.

T. K. Brown² and his co-workers reported in 1934 a series of cases with the use of pyridium in suppository form and also the use of potassium permanganate douches. The results of their series were somewhat better than mine, probably because they were using a 4 per cent pyridium instead of the 2 per cent used in my fourteen cases.

Another method of treatment reported by R. J. Crossen in 1935³ was the use of diathermy in conjunction with pyridium and a bacterio-

phage. This method was given up by me ten years ago because of the mental trauma suffered by the children under treatment, which is had under any circumstances in these cases. I have felt that the use of diathermy was impractical because of the extreme difficulty encountered in gaining the children's cooperation and maintaining this cooperation for a sufficiently long period of time.

In 1933 Lewis⁴ reported a series of cases treated with theelin injections. He contended that antiseptics did not penetrate sufficiently deep to affect the habitat of the gonococcus, as the organisms lie within the interstices of the epithelial cells or within the subepithelial spaces. He felt that by being able to change the character of the epithelium of the child's vagina he would be able to destroy the gonococcus by making its habitat unfavorable.

Edgar Allen in 1928⁵ demonstrated that such a transformation was possible in the immature monkey. He found after the injection of ovarian hormone that the epithelium of the vagina had increased from four layers to thirty layers. Smears showed proportional increase of cornified epithelial cells. Lewis' next question was whether or not theelin would be a safe procedure to the child and he felt that he had the answer in the work of Hartman in 1930,⁶ who showed that the endometrium did not develop beyond the interval stage and he was of the opinion that the dosage of theelin required to produce vaginal reaction is far less than that which would lead to injurious changes or uterine bleeding and that theelin is so readily excreted by the kidney that no deleterious effect results. There were eight cases in his first series reported and they received no other form of treatment. Four had recent infections and four were chronic cases of from four to twenty months. He reported that discharge stopped soon after treatment was begun and that smears were negative after twenty days. Children on larger amounts than 2800 rat units showed hypertrophy and increased vascularity of the labia and introitus but no uterine bleeding. Desquamation of epithelial cells was found in from seven to twenty-one days.

Boyd Reading⁷ reported a series of eight cases treated with theelin with no harmful after-effects. His series showed no enlargement of the breasts or hypertrophy of the labia. The amount of theelin in this series varied from 2100 to 6000 rat units with most smears negative after the use of about 1900 rat units. Chronic cases responded more promptly to treatment than acute infections.

Miller in 1935⁸ reports a fairly large series of sixty-eight cases, forty-two of which were observed for six months or longer. He reports

only seven failures in this series. The only report found in literature contradictory to the value of estrogenic substance was by J. T. Witherspoon in 1935⁹ who reported that he was unable to substantiate the findings of Lewis. The explanation of this is probably found in the work of R. W. TeLinde and J. N. Brawner¹⁰ who found that amniotin administered hypodermically was of no value in the treatment of gonococcus vaginitis although amniotin in oil and also amniotin in suppository form was efficacious in the production of mature vaginal epithelium.

Although the consensus of opinion at the present time has been favorable toward the use of estrogenic substance, the one unpleasant factor has been the daily hypodermic injection. About two years ago I began the use of theelol by mouth and although my series consists of only nine patients varying in age from 3 to 5 years with one child aged 9, at no time did I receive the complaint that the child was unable to take the capsule by mouth. All nine patients in this series were given the same dosage, four capsules daily in divided doses or a total of 200 rat units daily. The discharge was markedly lessened at the end of the first week and smears at this time though still positive showed a predominance of desquamated epithelial cells. At the end of the second week there was very little discharge in seven of the cases and at this time definite hypertrophy of the labia with a fine growth of hair at the vulva could be seen. One case also showed hypertrophy of one breast. There were no complaints by the children because of these secondary manifestations, although they were noticed by the mothers. Negative smears were obtained on all in eight to twelve weeks and they have remained consistently negative. One child had negative smears but the discharge continued, probably due to a secondary invader. This child was given daily potassium permanganate douches, 1:1500 as advocated by T. K. Brown.²

This series was purposely not quoted in statistic form as it is entirely too small and conclusions cannot be drawn; only impressions. A small percentage of the patients in the past who have had persistent positive smears have shown involvement of the cervical glands. I feel that in a large series of cases it is possible this will occur even with the use of estrogenic substance and when smears do not become negative the cervix should be investigated by means of a small electrically lighted endoscope.

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EXTREME OBESITY

REPORT OF A CASE

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The following case is reported because the patient's enormous weight made him a medical curiosity and because he was known personally to many Missouri physicians.

Clyde Avery Perkins, born near Arkoe, Missouri, August 16, 1890, died at Maryville, Missouri, April 23, 1936; male, native white American, single. Gross overweight was a noticeable characteristic of all the members of his family. His paternal grandmother weighed 365 pounds. His father, a farmer, died of tuberculosis at the age of 25, eight months before our patient's birth. His mother died at 60 of carcinoma of the rectum, and his only sister, who weighed 225 pounds, died at 36 following the surgical removal of an ovarian cyst. He had no other immediate relatives.

A plump infant at birth, Mr. Perkins was extremely obese from babyhood to death. He went to a country school and graduated from high school in 1907 ranking high in his class. Later he attended a business college and took a correspondence course in law.

His livelihood was a complex and difficult matter. His tailor always added 40 per cent to the usual cost of clothes for the extra material required. He could patronize a haberdashery for sox, handkerchiefs and ties, but all the rest of his clothing had to be especially made. A much overgrown youth, he taught a rural school, clerked in a country bank, was a census enumerator and labored in a cement-block factory. He served as a village postmaster for five years, ran a restaurant and meat market for a time, and then edited a weekly newspaper for two years. He was accountant to the Missouri House of Representatives in 1923 and postmaster to the Missouri State Senate in 1925. During this session of the General Assembly he received wide newspaper notoriety when a barber's chair in the Capitol barbershop collapsed under his enormous bulk. He refused a Hollywood offer in a justifiable fear that he would be hurt by the pranks expected of fat men in movies. He became deputy county clerk of Nodaway County in 1930. On the date of his death he was in his fourth year as treasurer and ex-officio tax collector of Nodaway County and was a candidate for reelection to this office. He had dabbled much in local politics, and very frequently served as delegate to various conventions and as a representative to the gatherings of numerous fraternal orders.



He showed more than usual ability in elementary mathematics and the talents of an expert in accountancy.

He had an enormous appetite and it remained consistently enormous; he usually gave free rein to an intemperate craving for candies and ice cream. He was a moderate user of tobacco. He was very fond of athletic sports but only as a spectator. He was a good swimmer but his appearance in a pool made him an astounding spectacle. He could not get into an ordinary bathtub. He was surprisingly active for all his ungainly appearance. Slightly knock-kneed, his walk was a vigorous, "roly-poly" waddle. In appearance his bulk seemed considerable more vast than that of any of the professional fat men who are exhibited in circus side shows. Innumerable broken chairs and shattered beds marked his spoor as he ponderously and placidly ambled through life. He drove his own car, a low priced coach whose driver's seat had been set back ten inches from its ordinary position. He drove alone from northwest Missouri to Washington, D. C., in the summer of 1935 in two days, and he motored through the Black Hills and Yellowstone National Park on his last vacation.

He had all the usual diseases of childhood before his twentieth year. He had a seasonal hay fever and asthma all his life from an allergic sensitization to ragweed pollen. He was quite sick for more than a month in 1921 from a hemorrhagic purpura. Dr. Jacob Geiger, St. Joseph, succeeded in excising an anal fistula and did a hemorrhoidectomy for him in 1925. The operation was performed with the patient prone on the floor of the operating room, in a maze of straps and webbing, since the ordinary table would not support



him. The high spot in his avoirdupois was attained in August, 1924, at which time he tipped the scales at 570 gross pounds when he was dressed in ordinary street clothes. On March 1, 1929, after restricting his diet for six months he still weighed 474 pounds stripped, his chest measured $59\frac{1}{2}$ inches and his waist $68\frac{1}{2}$ inches. The only effect which he got from thyroid extract was a quickening of his pulse rate. His fat was evenly, regularly and symmetrically distributed. During the last dozen years of his life he sometimes ran a one plus trace of albumen on urinalysis and he complained occasionally of a slight and transient dysuria. His blood sugar was never far from 110 mg. His normal defecation was three or four rather watery stools daily.

His hair was thick, fine and silky, and he had a moderate beard. His vision and hearing were normal. His skin was very smooth, clear and soft except below his knees. The skin of his lower legs and feet was rough, thickened and splotted with dark brown and purplish patches. He had numerous varicose veins here and had had several varicose ulcers. His pubic hair was scanty; his penis was infantile and there were no testes palpable in his fat flat scrotum. His customary pulse rate was about 68 with a pronounced sinus arrhythmia. Respiration was always about 16, but I never saw him when his rate of breathing was not totally irregular, jerky and devoid of all rhythm, even in sleep. His extreme chest expansion was less than 2 inches. He needed only the usual seven or eight hours of sleep nightly. He was friendly and fun loving, shrewd and competent. His hands and feet seemed peculiarly small and delicate for a man of his size; he wore size $8\frac{1}{2}$ gloves and 11 F shoes. His hat size was $7\frac{1}{2}$; a 19 collar fitted him snugly, and his especially made belt was 74 inches long. During the last decade of his life he wore an abdominal support of his own

contriving, made from old inner tubes. He died unexpectedly while at stool in the thirteenth day of his second attack of idiopathic purpura hemorrhagica.

His net weight after death, and after an extensive loss of body fluids from vomiting, sweating and a rectal hemorrhage, was 480 pounds (214 Kg.). An autopsy could not be had, but the following measurements of his dimensions were secured immediately after death: Crown-heel length, 5 feet 10 inches; occipito-frontal circumference, $24\frac{1}{2}$ inches; biacromial diameter, 16 inches; width between nipples, $17\frac{3}{4}$ inches; chest circumference at nipples, $64\frac{3}{4}$ inches; chest circumference at 10th rib, $68\frac{1}{2}$ inches; circumference of abdomen at navel, $72\frac{1}{2}$ inches; greatest girth of abdomen, 8 inches below navel, 79 inches; length from suprasternal notch to umbilicus, $27\frac{1}{2}$ inches; length from umbilicus to symphysis, 17 inches; circumference of upper arm at biceps, $18\frac{3}{4}$ inches; circumference at elbow, 14 inches; circumference of forearm, $13\frac{3}{4}$ inches; circumference of wrist, 8 inches; length from olecranon to styloid process of ulna, $11\frac{1}{2}$ inches; circumference of thigh at groin, 36 inches; circumference of upper leg at its center, $33\frac{3}{4}$ inches; circumference of knee, 25 inches; circumference of calf, 25 inches; circumference of ankle, $11\frac{1}{4}$ inches, and length from trochanter to ankle, $35\frac{1}{4}$ inches. There was a variance of less than one fourth inch between the right and left sides in all of these dimensions.

Clinically this case is one of pituitary dysfunction in a patient who had inherited a fixed tendency to excessive fat accumulation. And truly, to revise the copybook maxim, "There is a destiny that ends our shapes."

ORCHITIS AND OOPHORITIS PAROTIDEA (OSLER)

A. P. Ohlmacher, Royal Oak, Mich. (Journal A. M. A., June 13, 1936), cites an instance of orchitis parotidea without parotitis along with a case of primary oophoritis due to the virus of mumps. Rather definite similarities existed in the appearance of the involved ovary in the second case and that of the testicles exposed at operation by other workers. There would seem to be little doubt concerning the authenticity of this case of oophoritis parotidea. No other logical explanation for the appearance of the ovary, especially in the light of subsequent developments, can be readily advanced. A specimen for microscopic study was not obtained. The whole subsequent clinical picture, including the general physical condition of the patient, the chronological sequence of events leading to the development and subsidence of the parotid involvement and the physical characteristics of the salivary protuberances was definitely not that of the suppurative postoperative type of parotitis. The author is convinced that the exposure and manipulation of the offending ovary were important factors in the prompt development and full blown picture assumed by the parotitis. Whether without operation the parotids would have remained unsullied and the case run its course as one of oophoritis parotidea without parotitis is idle speculation. It is probable that this excessively unusual pathologic process will always present enough similarity to acute appendicitis to suggest operative intervention strongly, even granting that watchful waiting and astute differential diagnostic efforts would surely be rewarded by cognizance of the true state of affairs.

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JULY, 1936

EDITORIALS

REFRESHER COURSES IN PEDIATRICS AND OBSTETRICS TO BE GIVEN THROUGHOUT MISSOURI

An outline of the plan of the Division of Child Hygiene of the State Board of Health of Missouri as contemplated under the Social Security legislation and approved by the Children's Bureau of the United States Department of Labor was published in the May (1936) issue of THE JOURNAL.

A portion of the federal funds available to the various states for maternal and child welfare work has been allocated to the Missouri State Board of Health to provide postgraduate courses in obstetrics and pediatrics for practitioners of medicine located in rural areas without charge for enrollment or tuition. Thus physicians will be given an opportunity to attend postgraduate courses of instruction in these two specialties without sacrifice of time or expense as is necessitated when such courses are sought in leading medical centers.

Dr. Herman S. Gove, Director of the Division of Child Hygiene of the State Board of Health, in presenting the plan to the Children's Bureau said: "The average age of physicians in rural areas in the State of Missouri is 57 plus years, with very few physicians under 35. The economic condition of the physician bears a direct ratio to the economic condition of the community in which he practices. These physicians find it impossible from a financial or time standpoint to leave their practices for a period sufficient to do any valuable postgraduate work. It is consequently the desire of this department to give to these physicians the advantage of postgraduate education in obstetrics and pediatrics. We feel that reduction in both maternal mortality and infant mortality will come only through a well educated and well qualified medical pro-

fession. We feel that there are few physicians who will not gladly attend a series of lectures and clinics on pediatrics and obstetrics. It has been the writer's privilege to see a series of lectures of this nature delivered in a strictly rural county. In that instance, however, some thirty-five physicians paid \$35 each for this series of lectures. The result of this course of postgraduate training was absolutely astounding. Even the older doctors acquired an entirely different and much more scientific attitude toward the care of their patients."

These courses will be conducted by full-time well qualified and specially trained instructors in obstetrics and pediatrics from the St. Louis University and Missouri University schools of medicine. Dr. E. T. McGaugh, State Health Commissioner, has appointed Dr. Paul F. Fletcher, St. Louis, obstetrician, and Dr. Oscar F. Bradford, Kansas City, pediatrician. Motion pictures and lantern slides will be used for demonstration in conjunction with most of the lectures. Clinical demonstrations, both wet and dry, will be conducted whenever clinical material is available. Each lecture will be followed by an informal discussion for the presentation of individual problems.

The state has been divided into six lecture districts, A, B, C, D, E and F. Each lecture district will comprise the various counties in approximately five Councilor Districts. Each course will consist of eight lectures, one to be given each week in a Councilor District on the same day of each week. This will permit the lecturer to give the same lecture in five Councilor Districts each week until the course is complete.

The first course in obstetrics will be inaugurated the latter part of July in lecture district "D" comprising the counties in Councilor Districts 21, 22, 23, 24 and 25.

Similarly the first course in pediatrics will be inaugurated in lecture district "A" comprising the counties in Councilor Districts 1, 3, 4, 11 and 12. Dr. Fletcher and Dr. Bradford plan to consult each Councilor of the districts personally to arrange for meeting places and sponsorship of each meeting by the county medical society. Each county medical society and individual physician will be sent an invitation to attend as well as an outline of the courses together with the place and date of meetings.

It will take approximately a full year to present these two courses to all counties in the rural areas, each course following the other in approximately six or seven months. Inclement weather during January and February may slow up the program somewhat.

All members should avail themselves of this excellent opportunity to attend the lectures. It

will further give each society a splendid opportunity to build up membership.

The Committee on Maternal Welfare of the State Association and the Division of Child Hygiene have worked diligently in the preparation of these lectures. It behooves each member to accord the plan support and attend the meetings.

SUMMER EXHAUSTION

It is a matter of common clinical observation that during the summer season there is a gradual letting down of physical energy. Persons seemingly well show a disinclination for activity, work less efficiently, eat less. For some years it was believed that the fatigue so manifested was due to loss of appetite brought on by external heat. In the belief that summer malaise could be diminished physicians formerly advised that the dietary protein be reduced, more especially meat. Yet a sea food salad which contains approximately as much protein as a serving of roast proves quite acceptable to the average citizen who remains in Missouri during the hot spell. In any event the relatively slight specific dynamic action of protein, particularly when it is recalled that gram for gram it is ingested in much smaller amounts than either of the two other primary food elements, cannot be considered accountable for the lulling effect of the summer sun.

During the last few years a much more rational explanation for summer lethargy has appeared. While the mechanism of its action is not clear, clinical application vouches its essential correctness. The most prominent metabolic change in the summer time is the increased perspiration experienced by normal people. Of course it is well known that this increase in perspiration is necessary for the dissipation of heat formed in the normal processes of the body, heat which is lost by conduction, convection and radiation during cooler weather. The loss to the body sustained in this manner is not confined entirely to the fluid elements. Were that true the skin might be looked upon as an accessory kidney and the water loss which it mediates disregarded. Analysis of the sweat discloses the presence of appreciable amounts of salt, chiefly in the form of sodium chloride; simultaneous blood analyses disclose reduced sodium chloride concentrations. It is self evident that the skin does not have the same selective excretory power manifested by the intact kidney which can hold back enough salt to maintain the blood concentration of this important life-sustaining substance at the optimal level.

While the essential physiological mechanism of electrolyte function is not entirely clear the

beneficial effect of the ingestion of extra salt has been known to men engaged in labor in the presence of excessive external temperatures for many years. Employees of ship boiler rooms and of steel foundries have found increased well being from the regular inclusion of salt in all drinking water. During the last summer beneficial symptomatic effects in and improvement in daily work output by industrial employees were reported to follow the ingestion of added salt to compensate for that lost in the sweat. From time to time physicians have prescribed salt in the treatment of the vague syndrome of exhaustion frequently presented by otherwise healthy persons during the hot season. The indefinite abdominal pain of which these patients sometimes complain may well be due to salt depletion. For example, it has been suggested that the abdominal pain which is such a frequent precursor of diabetic coma is due to depletion of the body chloride reserve brought on by the loss of hydrochloric acid in the vomitus; in any event the infusion of normal or hypertonic salt solution usually suffices to relieve these pains unless they are due to organic disease within the peritoneal cavity.

A rational treatment of the syndrome of summer exhaustion is clear. Ordinary table salt may be prescribed in half teaspoonful doses once or twice daily to replace that lost in the perspiration. A normal level of blood chlorides may sometimes be interpreted to mean that sufficient salt is being retained by the body. Compressed tablets of sodium chloride, each containing about 16 grains of salt, may be prescribed if desired. It would seem that the provision of compressed tablets having the composition of Ringer's solution might be even more desirable inasmuch as they would replace the other electrolytes lost in the sweat along with sodium chloride.

Insofar as the summer dietary régime of the patient is concerned physicians need no longer restrict protein intake. While, in general, foods served in the form of salads or chilled will prove more tempting to the appetite, there is no objection to hot roasts or soups. Chilled drinks are acceptable. But the important dietary change upon which the physician must insist, to avoid the symptoms of summer exhaustion, is the inclusion in the diet of ample quantities of sodium chloride.

PNEUMOTHORAX TREATMENT OF PNEUMONIA

During the influenza pandemic of 1918 Dr. A. D. Rood of the Medical Corps of the United States Army made the accidental observation that the introduction of air into the pleural

cavity of patients ill with pneumonia brought about symptomatic improvement so great that the soldiers under his care demanded repetition of the treatment. On the whole, this procedure was lost to sight for the next ten or twelve years when it emerged to find widespread, if only temporary, favor. Last year Leopold and Lieberman¹ reported to the American College of Physicians the result of their analysis of 197 reports culled from the literature on patients with lobar pneumonia treated with artificial pneumothorax. The death rate in this group, 29 per cent, is approximately the same as that to be found in any large series of pneumonia patients. Hence, of itself, the new treatment would seem to offer no advantage insofar as it reduces mortality. However these authors believe that in many instances the fatal outcome in these cases is to be attributed to the employment of the method after the first 72 hours of the disease; they are of the opinion that delayed pneumothorax treatment may spread rather than localize the infective process. Further, they find that pleural adhesions, present in 50 per cent of all adults coming to autopsy regardless of the cause of death, seriously hamper the efficacy of artificially introduced air by preventing complete collapse of the lung. After the first 72 hours of the disease there has usually been sufficient fibrinous pleural exudate to form adhesions in those persons who did not have them at the onset of the disease. They conclude that artificial pneumothorax may have a definite place in the therapeutic armamentarium against pneumonia, particularly since it can be used in conjunction with any other remedy.

The use of this method of treatment may receive impetus as a result of the careful laboratory and clinical study recently reported by Blake, Howard and Hull² of the Yale University School of Medicine. From a study of the literature as well as their personal experience with forty-two cases they believe that artificial pneumothorax brings about (1) prompt relief of pain, (2) immediate relief of dyspnea, (3) marked improvement in the general toxic manifestations of the disease, and (4) less often a critical fall in temperature. Certainly any procedure which combines these four curative properties is of value in pneumonia and cannot be disregarded without further trial. Their interest in the matter led them to study the theories on the pathogenesis of pneumonia in the light of the relief afforded by pneumothorax treatment.

There are three major theories as to the

pathogenesis of pneumonia: (1) That it is a hematogenous infection with localization in the lung; (2) that it is the result of a mucous plug occluding a main bronchus with subsequent atelectasis beginning in the periphery and extending toward the hilum with a secondary spread of the pneumococcus from the hilum throughout the collapsed area; (3) that it is a primary local bronchiogenic infection of the lung with peripheral spread of the infective agent. The first hypothesis seems unlikely in view of the fact that the intravenous injection of virulent pneumococci is not followed by the appearance of pulmonary consolidation. The second hypothesis seems untenable in view of the general clinical finding that pneumonia begins centrally; furthermore Blake and his co-workers present serial roentgenograms showing the peripheral spread of the infective process from the hilum of the lung. In only one of their cases, seen late, was there evidence to substantiate the impression that the pneumonia had originated through peripheral atelectasis following a bronchial plug.

The experiments of this second group of workers show clearly why pneumothorax is not always successful in the treatment of lobar pneumonia. In the first place, the introduction of insufficient amounts of air produces only a mantle about the lung; it is inconceivable that this mantle can exert any critical pressure on the involved area. To be effective, enough air must be introduced to collapse the whole lung completely. It is self-evident that the separation of the two inflamed pleurae will relieve the pain of pleurisy. More than that, effective splinting of the lung (by complete collapse) prevents to and fro respiratory movements. It is possible but not proved that such immobilization prevents the absorption of toxic products. Whether the complete collapse which they advocate will be followed by a critical fall in temperature and resolution of the infective process cannot be determined from their series of cases because the optimal therapeutic technic was not developed until late in the course of their studies. In one 20 year old male with a Type V infection, seen six hours after the onset of symptoms, 2600 cc. of air in two injections brought about complete collapse and initiated a rapid convalescence, the temperature being normal 36 hours after onset.

Blake and his coworkers stress the particular care which should be exercised in giving artificial pneumothorax for this purpose. Since hepatization of the affected lobe takes place within 50 and possibly 70 hours, treatment must be begun before this time. A large amount of air is advised at the first injection, enough to produce a mean intrapleural pressure of + 1 or

1. Leopold, S. S., and Lieberman, L. M.: The Present Status of Artificial Pneumothorax in the Treatment of Pneumonia, *Ann. Int. Med.* 9:19, 1935.

2. Blake, F. G.; Howard, M. E., and Hull, W. S.: Artificial Pneumothorax in Lobar Pneumonia, *Medicine* 15:1, 1936.

+ 2 cm. of water if the patient lies with the affected side up, + 4 or + 5 cm. of water if he lies supine or with the affected side down. Mediastinal displacement accounts for this difference in the optimal intrapleural pressure. It would seem, on the basis of these experiments that the pneumonia patient should lie with the affected side up, especially if pneumothorax treatment is not used. As much as 2400 cc. of air may be required at the time of the first injection; it must be injected at an area relatively free of pleural involvement, most frequently below the scapular angle. The rate of inflow is important; not more than 20 cc. of air should be allowed to flow in per minute until atmospheric pressure has been reached; monometer readings should be taken after every 50 or 100 cc. to determine this level. Pain or discomfort may indicate the presence of adhesions and serve as an indication to interrupt the injection. Refills are necessary from time to time, depending upon the intrapleural pressure and the clinical symptoms. The method should not be used in the case of pneumonia in children or in the known presence of adhesions at any age.

Since the appearance of this excellent study by Blake, Howard and Hull with meticulous directions for its proper employment, artificial pneumothorax as a treatment for pneumonia should not be discarded without further trial. It possesses an added virtue in that it does not interfere with the use of any suitable antibody serum.

STATE BOARD OF HEALTH ENLARGES LABORATORY

One of the fundamental responsibilities of the State Board of Health is the prevention and control of communicable diseases. The Board maintains public health and bacteriological laboratories of which Dr. C. F. Adams is director. Technical consultation service is available to physicians and local health departments in the prevention, diagnosis and control of disease. Diagnostic service is rendered without charge to physicians and health officers.

The laboratories have been inadequately housed and not properly equipped to handle various kinds of analytical work on milk and milk products. Epidemics of scarlet fever, septic sore throat, diphtheria, typhoid fever and other diseases have occurred where a properly equipped laboratory in the Department of Health could have rendered invaluable aid. It is known that milk supplies might be wholly responsible in the spreading of such diseases.

In the report of the State Commissioner of Health for January, 1936, we find: "It is here believed that the laboratories constitute an im-

portant corner stone in the State Board of Health, and the success of the entire institution will depend quite largely upon the adequacy of the laboratories. As is known, one of the conditions governing the allocation of the Social Security money is 'an acceptable state public health laboratory service,' and 'services for study, promotion and supervision of environmental sanitation.' Just what constitutes an acceptable laboratory service is not defined, but it is our opinion that such a service is much broader than the bacteriology that concerns merely communicable diseases. Also just what is meant by 'study' is not stated, but it cannot mean anything but research with reference to the problems in hand, and when such problems are in reference to environmental sanitation, that means laboratory investigation. Stream pollution, a mosquito survey, an outbreak of food poisoning or the investigation of a milk supply with reference to its being the source of a scarlet fever epidemic are good illustrations of 'study' with reference to environmental sanitation. Our laboratories are not now properly equipped for this kind of work, and using the very expressions sent out from Washington as our license, we ask for proper equipment and staff to take care of any and all work sent to us. The budget submitted is virtually the irreducible minimum, so far as our personnel and physical equipment are concerned."

Dr. E. T. McGaugh, Commissioner of Health, has recently announced approval of his budget and that the housing facilities for the laboratory are being enlarged, new equipment purchased and additional members will be added to the staff. This is being made possible through the allocations of funds made available to states for such purposes under the Social Security Act. This will permit the Department of Health to engage in a broader program including food, drugs, water and sewage analytical work as the broad field of sanitation requires complete laboratory cooperation.

The laboratory statistical report for May showed that 4165 examinations were made and 4532 outfits distributed. The total from January 1 to May 31 was 42,727.

MEDICAL ECONOMIC SECURITY ADMINISTRATION

The Group Hospital Service division of the Medical Economic Security Administration, St. Louis, is now in operation. Fifteen hundred employees of thirty organizations have enrolled. Ten persons from this group have been hospitalized under the plan in nine St. Louis hospitals for a total of seventy-nine days. Each of these patients earns less than \$20 a week.

The Medical Dental Service Bureau, which has been in operation for some time, has assisted 670 low income patients in budgeting toward caring for medical and dental bills totalling \$58,800. A total of \$18,200 has been paid on this amount.

NEWS NOTES

Dr. T. Guy Hetherlin, Louisiana, has been appointed health officer for Louisiana.

Dr. F. H. Ewerhardt, St. Louis, was a guest of the Adams County (Illinois) Medical Society at Quincy, Illinois, May 11. He gave an address on "Fever Therapy."

Dr. Richard Lee Russell, Springfield, formerly connected with the Green County Health Department, has begun his duties as Assistant Director, Division of Child Hygiene, Missouri State Board of Health.

Dr. Leon Asher, professor of physiology, University of Berne, Switzerland, delivered an illustrated lecture on "Integration by Internal Secretions" at Washington University School of Medicine, St. Louis, on May 11.

Dr. Theodore R. Meyer, formerly of Paw Paw, Michigan, has begun his duties as Health Commissioner of St. Louis County. Dr. Meyer was director of the Van Buren County (Michigan) Health Department at Paw Paw, Michigan.

Dr. George D. Kettelkamp, Koch, was clinician at a clinic on March 27 at Union. The clinic was conducted by the Franklin County Medical Society, the Franklin County Tuberculosis Association and the Missouri Tuberculosis Association. Forty-four skin tests were given contact children and several chest examinations were made on adults. Skin tests that had been made previously were read.

Dr. Richard L. Sutton, Sr., Kansas City, was a guest of the Iowa and Illinois Central District Medical Association at Davenport, Iowa, on May 26. In the afternoon he conducted a clinic on "Cancer of the Skin." In the evening he delivered a lecture on "Africa and the Arctic." On May 27 Dr. Sutton was a guest of the Three County Medical Society at Washington, Iowa; he conducted a clinic in the afternoon and delivered a lecture in the evening.

Dr. R. B. H. Gradwohl, St. Louis, recently took a two weeks' cruise on the U. S. S. *West Virginia*, flagship of the Battleship Division of the United States Fleet. The ship took part in a fleet problem between San Pedro, California, and Panama, Canal Zone. Dr. Gradwohl is Lt. Commander, U. S. N. R., and made the trip in performance of his annual sea duty.

Dr. E. P. Lyon, dean of the University of Minnesota Medical School, retired from active service at the close of the academic year. His administration covered twenty-three years. As a tribute to his stimulating leadership the alumni and faculty of the Medical School propose to establish in his honor the Elias Potter Lyon Medical Lectureship at the University of Minnesota.

The Cancer Committee of the Missouri State Medical Association furnished speakers for a cancer control meeting sponsored by the 25th Council District at Farmington, June 19. Dr. E. L. Keyes, St. Louis, spoke on "Pathology and Treatment of Cancer of the Rectum" illustrating with lantern slides. Dr. P. C. Schnobelen, St. Louis, discussed "Value of Radiography in Cancer of the Rectum and Colon," and illustrated his talk with roentgen ray films.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Billhuber-Knoll Corporation

Hypodermic Tablets of Metrazol 1½ grains
Hospital Liquids, Inc.

Ringer's Solution

Dextrose 5% in Distilled Water

Dextrose 5% in Physiologic Solution of Sodium Chloride

Dextrose 10% in Distilled Water

Dextrose 10% in Physiologic Solution of Sodium Chloride

Dextrose 25% in Distilled Water

Lederle Laboratories, Inc.

Refined Alum Precipitated Tetanus Toxoid-Lederle

Parke, Davis & Co.

Compressed Tablets Sal-Ethyl Carbonate with Phenacetin

The following articles have been accepted for inclusion in the List of Articles and Brands Accepted by the Council but not described in N. N. R. (New and Nonofficial Remedies, 1935, p. 445):

Hospital Liquids, Inc.

Physiologic Solution of Sodium Chloride

Lederle Laboratories, Inc.

Smallpox Vaccine (Lederle) (Preserved
with Brilliant Green)

United States Standard Products Co.

Magnesium Sulphate 25% in 5 cc. Ampuls

Books for Leisure Moments

The ethical tenets of the medical profession have tended to keep from an alert and anxious public much medical minutiae in which they are vitally interested and of which they have, it seems to me, a right to know. In part this fear of propaganda comes from the aversion which many doctors feel toward self aggrandizement; in part it comes from the antagonism which it is feared will be felt by other physicians toward the publicizer of medical knowledge, should he be in active practice. On the other hand, cults of all types have never hesitated to spread before a waiting public all the lures and baits which ingenious advertising misinformers are able to devise. Yet, the public, directly through its payments to doctors and hospitals and indirectly through its endowments for hospitals and research has a right to know the benefits which the medical profession may bestow upon them. From the standpoint of the profession the proper publicizing of medical ability would appear wise in view of the day when individual citizens may be called upon to decide between the services of a cultist and an ethical practitioner to minister to their loved ones.

If the citizen is uninformed of the advantages offered by the physician but is aware of the allurements thrown forth by the cultist it is not to be wondered at that he chooses the latter. Many a story has been woven about man's willingness to face that whose advantages (and possibly in a general way, whose disadvantages) are known to him; even the bravest soul quavers on the brink of uncertainty when confronted with the utterly unknown and unguessable. Perhaps our own professional dignity and aloofness has sometimes contributed to this uncertainty; perhaps there have been times when it has driven patients into less skilled, less conscientious, less capable hands. Perhaps the Hippocratic ideals which encircle the physician have been partially misinterpreted; perhaps the Father of Medicine meant for the physician to inform the populace of his skill and ability not as it applied peculiarly to himself, but as it applied to the mass of his qualified colleagues.

In no single field of medical endeavor has there been so much ignorance on the part of the general public as in the specialty known as plastic surgery. Cults, quacks and charlatans with their soothing blandishments and dangerous injections have in large part had this field to themselves. From time to time the entire nation is aroused by the havoc wrought by one of these wrinkle removers or bone straighteners. For such reasons Maxwell Maltz's new book, "New Faces—New Futures," (Richard R. Smith, New York) should find a wide distribution. The author, a past president of the American Society of Plastic Surgeons, displays all the details of his art, its history and the physical and psychological transformation which it is able to accomplish. Numerous before and after pictures afford a graphic demonstration of his ability (and the ability of his qualified confreres) in this difficult field. The layman who seeks for a smattering of technical learning in order that he may better appre-

ciate the services that may be given his own family in time of a face deforming automobile accident will find it in this book. The physician who reads it may consider that some of the operative description could be left out; yet it is these seemingly routine details which enchant the layman. Let him have it and let him acquire a new respect for the technical perfection of modern medicine.

The importance of new faces in the psychic remaking of the individual is nowhere better emphasized than in the account of the attempts now being made by Commissioner MacCormick of New York City to provide plastic surgery for the correction of facial defects in minor criminals; some of them have been prevented from obtaining honest employment by an unprepossessing appearance, thus driven into crime as a means of livelihood. Certainly the Committee on Mental Health of the Missouri State Medical Association will watch with interest this further attack on the problem of the maladjusted individual.

"Roots of Crime," by Drs. Franz Alexander and William Stone (Alfred A. Knopf, New York) is a psychoanalytic case study of some dozen minor criminals; most of them were known to the Judge Baker Guidance Center as problem children years before their active participation in crime. The outstanding fact discovered in these cases is the poor environment furnished the child at home. Criminal parents, divorces, alcoholic debauchery, beatings, irrational attitudes, misanthropic outlooks in the parent, favoritism displayed toward another child in the family, a lack of sympathy with the point of view of youth; these would appear the chief contributory causes to the unhappy sequence of events which lead to the formation of an often unconscious resolve in the mind of the opposed child; for his own personal satisfaction he devises means to assert his superiority in some manner, usually by stealing and robbing, to compensate for the injustices dealt him by parents unequipped for parenthood. It is material which the Committee on Mental Health of our State Association might well use in furthering its efforts to bring an adequate understanding of the problems of youth to each community in the state.

One of the more interesting of these case reports is concerned with a young woman, 28 years of age, who voluntarily presented herself at the clinic for treatment to end her shoplifting proclivities. As a child she had been rather tall, given to much phantasy, addicted to telling long imaginative stories. A drunken, thieving father brought added difficulties into the home; she became much more adept than her brothers and sisters at stealing from the small stores of food in the locked pantry. She suffered several psychosexual traumas which may have had some connection with her penchant for stealing pocketbooks, often related by the psychiatrist to the female generative organs. At any rate, during a period of years, even when she held highly remunerative positions, she found herself unable to desist from pilfering. She took literally thousands of dollars worth of merchandise from stores and frequently robbed pocketbooks temporarily deposited on a table by their owners. Such stealing episodes, always without detection, were accompanied by intense sexual excitation. It is to be remembered that those acts were committed by a girl with a keen, alert mind, above the average in intelligence, and able to earn for herself a very satisfactory living. Unfortunately, the efforts of the psychiatrists, even in the face of her ultimate legal conviction for theft and subsequent probation, have so far been unavailing. The im-

portance of this case lies not so much in what may be done for this habitual thief at this late stage of her life as it does in bringing about a general recognition of psychic trauma to which growing children are subjected; it would seem urgent that society arrange to pick out of the schools those children who give promise of eventual antisocial or asocial conduct and arrange for their care by competent physicians. Such a course may prove beneficial not only in removing frustrations from the life of the child but also in lessening the annual crime bill of the nation. But it must be recognized that the delinquent child is not the only one in need of this assistance. Discontent and social intimidation must be removed from the lives of all children; if parents are unaware, and frequently they are unaware, of these perverse characteristics in their offspring, then these maladjusted children must be searched out by teachers trained for the purpose.

Dr. William White in "Twentieth Century Psychiatry" (W. W. Norton & Co., Inc., New York), the first of the Salmon lectures, presents a learned survey of his field. Continuing somewhat the implications to be noted above he pleads for wider dissemination and utilization of psychiatric knowledge and demands research freed from a directive purpose. He believes that any research in scientific fields may have a final adaptation different from the purposive original intent of the investigator. He would see mentally ill persons directed toward socially valuable, rather than socially pernicious, compensations. On the whole, this excellent presentation may prove a bit too abstruse for the general reader. B. Y. G.

OBITUARY

WILLIAM STEPHEN SMITH, M.D.

Dr. W. S. Smith, Rolla, a graduate of the Missouri Medical College, St. Louis, 1899, died March 7 after an illness of several months, aged 58.

Dr. Smith was born in Washington County, Missouri. After completing his medical education he began his practice in Salem and in 1906 he moved to Rolla. He soon became one of the leading physicians and citizens. He served for many years on the school board, as county health officer and on the board of aldermen. He was for many years secretary of the Phelps-Crawford County Medical Society. He was delegate to several Annual Sessions. He was a loyal member of organized medicine and was respected by his colleagues.

He is survived by his widow, Mrs. Myrtle Wingate Smith, one daughter, two grandchildren and one brother.

DAVID A. WILLIAMS, M.D.

Dr. David A. Williams, Niangua, a graduate of the Missouri Medical College, 1882, died of pneumonia May 9 after being ill for three weeks, aged 81 years.

Dr. Williams was born in Tennessee. He began his practice in Webster County and had practiced there for fifty-four years at the time of his death.

Dr. Williams was elected an honor member of the Webster County Medical Society in 1927. He was interested in medical society activities and in all civic betterment.

He is survived by his widow, Mrs. Mollie E. Williams, two daughters, two sisters and two brothers.

JAMES OSCAR COOPER, M.D.

Dr. J. O. Cooper, Linn, a graduate of Barnes Medical College, 1907, died at St. Mary's Hospital, Jefferson City, after a few days' illness from a complication of diseases, aged 51.

Dr. Cooper was born at Useful, Missouri. He attended high school in Linn. After completing his medical studies he practiced in several places and located in Linn in 1925.

He was active in organized medicine and was esteemed by his colleagues and by the great number to whom he had ministered. He served as president of the Gasconade-Maries-Osage County Medical Society in 1934.

Dr. Cooper is survived by two half brothers.

THOMAS JOSEPH RAGSDALE, M.D.

Dr. Thomas Joseph Ragsdale, Lee's Summit, was born in Lone Jack, Missouri, Dec. 3, 1873. He was educated in the Lone Jack schools and was graduated from Marion Sims Medical College, St. Louis, in 1895.

He practiced four years in Colorado and one year in Lone Jack, after which he located in Lee's Summit, Missouri, in 1901. Twelve years ago he began his hospital in Lee's Summit and at the time of his death had a fully equipped fifteen-bed hospital.

He was married to Elizabeth Soper, Independence, Missouri, in 1904. Mrs. Ragsdale died in 1923.

The doctor had poor health from 1930 until his death.

He enjoyed a very large practice and was greatly beloved. He died April 13, 1936, aged 62.—C. A. in the Jackson County Medical Journal.

EDGAR A. LEWIS, M.D.

Dr. E. A. Lewis, Rock Port, a graduate of the University Medical College, Kansas City, 1905, died at the Missouri Methodist Hospital, St. Joseph, November 7, aged 58.

Dr. Lewis was born in Rock Port and received his preliminary education there. He returned to his home town to enter the practice of medicine and remained in practice there until about a year before his death when ill health forced him to give it up. His family was well known in Rock Port and Dr. Lewis was known to everyone in the community. He was active in civic affairs although his practice and his interest and loyalty to organized medicine were always foremost.

He is survived by his widow, Mrs. Ethel Breese Lewis, and his mother, Mrs. Carrie VanMeter Lewis.

FREDERICK D. LEISER, M.D.

Dr. Frederick D. Leiter, a graduate of the Kansas City Hospital College of Medicine, 1886, died at the Trinity Lutheran Hospital, Kansas City, April 17, aged 83.

Dr. Leiter was born in Gerschweiler, Germany, and moved to America with his parents when he was 8 years old. He studied medicine at the Western Reserve University, Cleveland, before entering the school in Kansas City.

In 1890 he located in Concordia and remained in active practice there until his death. He gained many friends and there are many who mourn his death. He was elected an honor member of the Lafayette County Medical Society in 1935.

He is survived by his widow, Mrs. Louisa Creasy Leiter, a daughter and a son.

JOHN WILLIAM GOOD, M.D.

Dr. John W. Good, Fordland, a graduate of the St. Louis College of Physicians and Surgeons, 1897, died at his home of a heart attack, May 11, aged 75.

Dr. Good was born in Greene County. After receiving his medical degree he began his practice in Douglas County but two years later moved to Fordland where he remained active in his practice until his death.

Dr. Good was an active member of the Webster County Medical Society and acted as delegate to several Annual Sessions. He was ever interested in his practice; he was loved by all who knew him.

He is survived by his widow, Mrs. Isabel Good, three sons, three grandsons and three brothers.

VINCENT A. PETERS, M.D.

Dr. Vincent A. Peters, Lee's Summit, was born thirty-four years ago, the son of Dr. and Mrs. J. A. Peters, Oxford, Iowa.

He received his early education in the Oxford schools and was graduated from Oxford High School in 1920, being valedictorian of his class and having completed the four years' course in three years. During his school years he was active in various departments of the school. He was a member of the orchestra, captain of the baseball team, president of the literary society and served as editor-in-chief of the *Advertiser*, the high school paper.

In 1920 he entered the University of Iowa and was graduated from the School of Medicine in 1926. Immediately after graduation he began his intern work at St. Margaret's Hospital in Kansas City, Kansas, and later at the Mayo Clinic in Rochester, Minnesota.

In 1927 Dr. Peters was united in marriage to Miss Florence Rock, who survives him, also an adopted son, James Lawrence Peters, and his parents, Dr. and Mrs. J. A. Peters, and one brother, Dr. Urban R. Peters, Lexington.

He went to Lee's Summit in 1928 and for a year was associated with Dr. Thomas J. Ragsdale. The next year he established his own office in the Noel Building and had built an enviable reputation as a practitioner.

He was a loyal member of the Jackson County Medical Society.

In December, 1932, Dr. Peters was named deputy coroner for Eastern Jackson County by Dr. P. H. Owens, which position he held at the time of his death.

Dr. Peters entered St. Luke's Hospital for treatment of an infection of the blood stream which he received from treating a patient. He died April 15.—P. H. O. in the *Jackson County Medical Journal*.

W. W. HOBBS, M.D.

Dr. W. W. Hobbs, Raytown, was born July 17, 1881, near Raytown, Missouri. He was a graduate of Independence High School and of the University Medical College of Kansas City, Missouri, receiving his medical degree in 1904. He practiced two years at Blue Springs, Missouri, and then for thirty years at Raytown, Missouri. He was a member of the Jackson County Medical Society, Missouri State Medical Association and of the American Medical Association.

In June, 1907, Dr. Hobbs married Miss Betty Farlow of Independence, Missouri. Their children are William Charles, Hannah Mary and John Elmer Hobbs.

Dr. Hobbs advanced in Masonry in both Scottish and York Rites, attaining the Shrine. He was a trustee of the Methodist Church of Raytown and a respected

and prominent citizen. He died April 14 from the effects of a wound.

Never failing in industry and kindness, Dr. Hobbs was an honor to his profession and a constructive influence in his community. His mourning friends are legion.—T. T. in the *Jackson County Medical Journal*.

EUGENE R. VANMETER, M.D.

Eugene R. VanMeter, Springfield, was born in Elkhart, Illinois, September 19, 1884. He attended Central High School, Smith Academy, St. Louis, and Washington University School of Medicine. He had the rank of Captain, and Battalion Surgeon in the 91st Division during the World War, serving seven months in France.

After the war he began his work in otolaryngology, and was associated in the clinic with Dr. Greenfield Sluder. He rapidly assumed important work in this department. Dr. Sluder considered him one of the most skillful operators in doing the Sluder tonsillectomy that he had ever trained. For a number of years he carried a very busy practice in otolaryngology until a year before his death he was forced by failing health to leave the active life in St. Louis. He located in Springfield, Missouri, doing a limited amount of work, with the handicap of asthma and heart trouble constantly restricting him. While alone in his home he fell during an attack of dizziness fracturing both legs. He died in twenty-four hours from shock and hemorrhage. His jovial good humor, which I know was always sincere, made and kept his many friends.—J. B. C. in the *Bulletin* of the St. Louis Medical Society.

ADEN COBBS VICKREY, M.D.

On Friday, April 10, 1936, death brought to a close the career of a fellow practitioner and friend, Dr. Aden Cobbs Vickrey, St. Louis.

Born in Louisville, Illinois, January 30, 1886, Dr. Vickrey's early life was spent on the farm and in rural communities, an influence which prevailed through the remainder of his life. His scholastic education was obtained at McKendree College in Lebanon, Illinois, from which he graduated in 1909. The development of his aptitude for literary pursuits at this institution provided an avocation for the remainder of his life.

His medical education was obtained at Washington University Medical School from which he graduated in 1911.

Seeking further practical experience, the next three years of his life were spent as intern and dispensary physician at the St. Louis City Hospital. His interests from the start were in the field of neurology and psychiatry so that his appointment as Assistant Superintendent of the St. Louis City Sanitarium in 1919 provided abundant opportunity for experience in his chosen field.

Recognition of his unusual executive ability won for him an appointment as Superintendent of the State Hospital for the Insane at St. Joseph in 1922.

His highest attainment in his chosen work came in his appointment to the Psychiatric Division of the United States Public Health Service, in which he was engaged for several years during the reconstruction period after the war.

In his later years, an unfortunate series of illness interrupted the progress of his work and resulted in the virtual discontinuance of his practice.

To those who knew him he was a conscientious physician and a loyal friend; to his surviving wife, Mrs.

Florence Vickrey, and his children, Florence and Nelson, he was a devoted husband and father.

His untimely death will prove a severe loss to his family, his friends and to his colleagues in the St. Louis Medical Society.—L. R. S. in the *Bulletin* of the St. Louis Medical Society.

HARRY S. LANE, M.D.

The medical profession of Kansas City as well as the community at large was shocked when word came of the sudden death by accident of Dr. Harry S. Lane on April 14, 1936.

The unexpectedness of his death left his family stunned, and his friends and acquaintances felt keenly the sudden loss of a most genial, interesting and faithful companion.

Born in Liberty, Missouri, September 15, 1875, he received his early education in the city of his birth. After graduating from the Liberty High School and the William Jewell College he entered the University Medical College of Kansas City where in 1908 he received the degree of M.D. After his graduation he served an internship of eighteen months in the University Hospital during which time he gave 2409 anesthetics without a single death. This enviable record was duplicated during the eleven years which he served as anesthetist of the General Hospital, a position which he held to the time of his death. He also served on the nurses' board of the hospital.

Dr. Lane never did general practice, but in addition to his duties as anesthetist he owned and operated for seventeen years the Fairmount Maternity Hospital and acted as its sole obstetrician.

To his great disappointment Dr. Lane was unable to serve in the World War. An illness from which it took him three years to recover made his active participation impossible.

Dr. Lane was a member of the Jackson County (Missouri) Medical Society and American Medical Association. His interest in the community in which he lived and toiled is best shown by the statement that he served eight years on the school board of the consolidated district.

He did not play cards and belonged to no fraternal organizations, but spent all his leisure either with his family and friends or in his "Leisure Hour Stables" on Blue Ridge Boulevard, where he raised and kept fancy riding horses which he, with the aid of his fourteen-year-old daughter, exhibited at the American Royal and other horse shows and which brought him much favorable comment, many prizes and material reward and gave him the diversion much needed by every conscientious physician. It was on a trip to this favorite spot of his that he met his tragic death.

Dr. Lane is survived by his widow, Mrs. Metta Jane Lane, a son, Ralph F. Lane, a Kansas City attorney, and his daughter, Jane Lee.

His many friends and the medical profession keenly feel the loss sustained by his untimely death.—I. J. W. in the Jackson County Medical Journal.

CHARLES A. VOSBURGH, M.D.

With the untimely passing of Dr. Charles A. Vosburgh, St. Louis, there ended a most unusual career. He started from scratch and won the race. Born in West Virginia in 1878, the son of a country doctor, no silver spoon was in Dr. Vosburgh's mouth. But a greater heritage than that of material things was his—the heritage of a sturdy character and the will to rise. And that he did rise we all know. The evidences of a

successful life surrounded him—but they were merely the visible tokens of the high qualities that were bred into this man. Let it not be thought that his fullest success was to be measured in terms of material things. Far beyond this was that greater success that could be measured only in the full hearts of those to whom he gave so unstintingly of service; for Dr. Vosburgh loved to serve.

I have never known a better equipped all-round doctor than Charlie Vosburgh. Possessed of a keen, inquiring and logical mind he applied himself assiduously to the task of learning medicine, and he never ceased this application. The result was the acquisition of a deep fund of sound medical information which was always at his command for bedside use. His first and driving ambition was to be a good doctor. Toward the realization of this ambition, after graduation at the Barnes Medical College and his internship, he took extended courses of study in this country and abroad, but beyond this and even more to the purpose, he trained himself to close and exact observation.

Dr. Vosburgh never quit. Once he determined upon a given course of procedure he followed through without swerving. I have seen him continue to fight for a patient's life long after the average doctor would have given up the battle, and people live today as a result of this indomitable spirit. Several years ago when Dr. Vosburgh was candidate for the presidency of the St. Louis Medical Society and success seemed remote, several of his friends went to him, told him of the situation and advised him to withdraw. And his answer was so characteristic: "What if I am defeated? I'll fight fairly and as hard as I can. Surely there can be no disgrace in losing that sort of a fight." And that was Charlie Vosburgh. But he was not defeated—he won. And once in the presidency he threw himself wholeheartedly into the duties of the office and with the interest of the St. Louis Medical Society ever first in mind he showed his unlimited capacity for efficient and selfless service.

Other qualities that rounded out Dr. Vosburgh's character and made him the useful citizen he was, were his deep sense of obligation—obligation to family, country, profession, patient and friend—his versatility and his ingenuity. Versatile he was, and yet he did all things well. Let him perform a difficult surgical operation and it was well nigh flawless; or was it roses he was raising, he had the loveliest in the community.

Charlie Vosburgh, your useful life is ended, you have finished the tasks to which your Maker set you—now rest in peace.—C. M. in the *Bulletin* of the St. Louis Medical Society.

MATTYLEE CURL BARNETT, M.D.

However one may try to catch the spirit of a life and imprison it in words of eulogy, the effort leads to only one statement of stark sincerity, "Judged by its works, this is the story of a life." The real inner-meaning of the individual is locked from us, not only by death, but to a great extent, by life itself, during the brief span of human activity. We can only infer from our own experience, the joy or sorrow, satisfaction or frustration of another being. Love, work and death have recently been enumerated by a literary artist as the great agents of realization in human life.

If this be true, the life of Mattylee Curl Barnett, St. Louis, can only be looked upon as one of fulfillment. She was richly surrounded by the love of family and friends; her work was done through the medium of a stimulating and humanitarian profession, and her

death was simply a longer pause than customary to a routine day's activity.

Dr. Barnett was born July 16, 1879, at Chillicothe, Missouri, into a family of unusual cultural and civic traditions. Her father was a much-loved presiding elder in the Methodist Episcopal Church, South, and her mother an excellent musician. She was graduated from the Woman's Medical College of Kansas City in 1902, was married shortly after, and moved to Denver where she engaged in general practice for several years. She then came to St. Louis and took post-graduate work in ophthalmology at Barnes Medical College and Washington University School of Medicine, and limited her practice to diseases of the eye.

Her avocations were golf and music and it was always a source of pleasure to those who knew her well when she would sit down to the piano and sing to her own accompaniment.

She was a loyal member of the Medical Society which she served as 2nd Vice President in 1933, and to the group of women within the organization. Because we are so few in number, we shall keenly feel the loss of her genial, loyal companionship so outstandingly free from malice, cynicism or pretense. My last talk with her was at a dinner given by the women students of the Washington University Medical School, a few weeks before her death. With characteristic interest and determination, in spite of a recent fractured ankle, she came to this meeting to discuss the economic future of medicine, its social implications and the problems confronting the student of today and the physician of tomorrow. There could never be the shadow of a doubt of her genuine joy in the opportunities and successes of other women in the profession.

To the friends whom she has left, the memory of her vital personality will be a source of courage and inspiration. For her part, we feel that she might be saying—

Oh, may I join the Choir Invisible
Of those immortal dead who live again
In minds made better by their presence; live
To be the sweet presence of a good diffused
And in diffusion ever more intent.

—H. C. in the *Bulletin* of the
St. Louis Medical Society.

WM. P. DONOVAN, M.D.

Dr. William P. Donovan, St. Louis, was born at Merrill, Wisconsin, June 24, 1896. He died Sunday, March 15, 1936, when a plane which he was piloting crashed in St. Charles County, Missouri. This was a tragic but somehow fitting end to a life which had been filled with ceaseless activity and adventure.

After receiving his preliminary education in the schools of his home town, Campion College and the University of Wisconsin, he was graduated in medicine at St. Louis University in 1922. Throughout his entire school life he was actively engaged in competitive sports and was named an all-Missouri back in 1922.

He served his internship at the old Mullanphy and it was there under the tutorage of W. E. Sauer, V. V. Wood, Arthur Proetz and George Hourn that he became interested in their specialty and decided to make it his own, and this remained his major interest in medicine to the time of his death.

It was fitting and natural that a man of Bill Donovan's make-up should become interested in aviation. In 1928 he joined the Air Division of the Missouri National Guard, later becoming a pilot, flew regularly and enthusiastically, and it was while making a regular flight that his fatal accident occurred.

While not a politician, and taking only a passing interest in things political, when he was offered the post of Assistant Hospital Commissioner by Mayor Dickmann's Medical Advisory committee, to serve under his former professor of pathology, Ralph Thompson, he accepted because he saw a field for usefulness for himself and benefit for his adopted home.

It is not given to many of us to achieve greatness. Few leave a lasting memorial of discovery or invention for the benefit of our suffering fellow men. He who practices for money alone makes capital of the suffering of his neighbor. We must be content with doing the task we have chosen to our best ability for the glory of our profession and the benefit of those who come in contact with us. This was Bill Donovan's creed and his life exemplified his belief in the nobility of his profession and the high ideals of his own character. I doubt not that the great Physician has already said to him, "Well done thou good and faithful servant, for inasmuch as you have done to the least of these my brethren, so also have ye done to Me."

To his widow, the former Ann Corey to whom he was a most affectionate husband, his loss is irreparable. To his five little children who will scarcely remember him, his passing is a loss forever beyond their ken because they cannot know the lovable character of the man who was their father.

Words do not turn back time nor do they slow the sure hand of Death, yet words are the only medium by which we may pay our humble tribute to those whom we have loved in life.

And so to Dr. William P. Donovan let us rededicate those immortal lines to the chambered Nautilus:

Build thee more stately mansions, oh, my soul,
As the swift seasons roll
Leave thy low vaulted past
Let each new chamber nobler than the last
Shut thee from heaven with a dome more vast
Till thou at last art free
Leaving thine outgrown shell
By Life's unresting sea.

—H. A. H. in the *Bulletin* of the
St. Louis Medical Society.

TRICHLOROETHYLENE INTOXICATION

According to Herbert Eichert, Baltimore (Journal A. M. A., May 9, 1936), many cases of industrial poisoning with trichloroethylene have been reported, but there is only one recorded instance of a toxic syndrome following the prolonged therapeutic administration of the chemical. Two additional cases are presented. The symptoms observed were due to a disturbance of the central nervous system as manifested by mental confusion, disorientation, inability to concentrate, amnesia, aphasia, dysarthria, ataxia and analgesia without anesthesia of the area innervated by the trigeminal nerve. In view of these observations it seems likely that the original supposition is correct; namely, that the cases of industrial poisoning were due partly to adventitious substances and that all the manifestations noted in the industrial cases of so-called trichloroethylene poisoning were not necessarily effects of trichloroethylene alone. Although proprietary preparations of trichloroethylene are thought to be relatively harmless remedies if used in prescribed amounts, the cases presented here indicate that this therapeutic agent is capable of producing grave states of intoxication if the suggested dosage is exceeded or if the administration of the drug is unduly prolonged.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1936

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, Decem-
ber 19, 1935.

Montgomery County Medical Society,
January 7, 1936.

Ste. Genevieve County Medical Society,
January 8, 1936.

Camden County Medical Society, January
9, 1936.

Dent County Medical Society, January 13,
1936.

Perry County Medical Society, January 17,
1936.

Webster County Medical Society, Febru-
ary 4, 1936.

Moniteau County Medical Society, Febru-
ary 29, 1936.

Benton County Medical Society, April 6,
1936.

Phelps-Crawford County Medical Society,
April 6, 1936.

Jefferson County Medical Society, April
20, 1936.

8th District..... B. Kurt Stumberg, St. Charles
9th District..... A. R. McComas, Sturgeon
11th District..... J. H. Timberman, Chillicothe
12th District..... Spence Redman, Platte City
13th District..... E. P. Heller, Kansas City
14th District..... C. T. Ryland, Lexington
15th District..... L. J. Schofield, Warrensburg
16th District..... C. W. Luter, Butler
17th District..... Guy Titsworth, Sedalia
18th District..... W. L. Allee, Eldon
19th District..... J. S. Summers, Jefferson City
20th District..... Curtis H. Lohr, St. Louis
21st District..... C. E. Fallet, DeSoto
22nd District..... B. W. Hays, Jackson
24th District..... T. W. Cotton, Van Buren
25th District..... P. S. Tate, Farmington
26th District..... W. H. Breuer, St. James
27th District..... J. C. B. Davis, Willow Springs
28th District..... W. M. West, Monett
29th District..... R. M. James, Joplin
30th District..... R. B. Denny, Creve Coeur
31st District..... H. A. Lowe, Springfield

Delegates

COUNTY	DELEGATE
Adair-Schuyler...	G. E. Grim, Kirksville
Audrain.....	H. C. Brashear, Mexico
Barry.....	W. M. West, Monett
Bates.....	R. H. Smith, Rich Hill
Boone.....	F. G. Nifong, Columbia
Buchanan.....	H. W. Carle, St. Joseph
Buchanan.....	W. T. Stacy, St. Joseph
Butler.....	J. L. Harwell, Poplar Bluff
Callaway.....	T. S. Lapp, Fulton
Cass.....	B. O. Hartwell, Drexel
Cape Girardeau...	B. W. Hays, Jackson
Carter-Shannon...	T. W. Cotton, Van Buren
Chariton.....	J. W. Hardy, Sumner
Christian.....	R. R. Farthing, Ozark
Clark.....	J. R. Bridges, Kahoka
Cole.....	James Stewart, Jefferson City
Cooper.....	W. E. Stone, Boonville
Dallas-Hickory-	
Polk.....	G. C. Plummer, Buffalo
Dent.....	F. E. Butler, Salem
Dunklin.....	E. L. Spence, Kennett
Franklin.....	F. G. Mays, Washington
Gasconade-Maries-	
Osage.....	W. R. Ferrell, Belle
Greene.....	Wallis Smith, Springfield
Greene.....	Paul F. Cole, Springfield
Howard.....	W. J. Shaw, Fayette
Howell-Oregon...	A. H. Thornburgh, West Plains
Jackson.....	Lawrence P. Engel, Kansas City
Jackson.....	A. W. McAlester, Sr., Kansas City
Jackson.....	Ralph R. Wilson, Kansas City
Jackson.....	I. S. Brown, Kansas City
Jackson.....	H. L. Mantz, Kansas City
Jackson.....	Clarence S. Capell, Kansas City
Jackson.....	George E. Knappenberger, Kansas City
Jackson.....	Rexford L. Diveley, Kansas City
Jackson.....	Hermion S. Major, Kansas City
Jackson.....	W. W. Buckingham, Kansas City
Jackson.....	Morris B. Simpson, Kansas City
Jackson.....	Albert S. Welch, Kansas City
Jasper.....	L. B. Clinton, Carthage
Jefferson.....	John F. Rutledge, Crystal City
Johnson.....	W. E. Johnson, Warrensburg
Laclede.....	J. A. Scott, Lebanon
Lafayette.....	E. L. Johnston, Concordia
Lawrence-Stone...	R. D. Cowan, Aurora

MISSOURI STATE MEDICAL ASSOCIATION

Seventy-Ninth Annual Session
Columbia

April 13, 14, 15, 1936

MINUTES OF THE HOUSE OF DELEGATES

Hotel Tiger, Monday, April 13, 1936
Morning Session

The first meeting of the House of Delegates of the Seventy-ninth Annual Session of the Missouri State Medical Association, held in the Ballroom of the Hotel Tiger, Columbia, convened at 9:45 a. m., Monday, April 13, 1936, the President, Dr. E. Lee Miller, Kansas City, presiding.

At roll call 116 officers and delegates responded as follows:

Officers

President.....E. Lee Miller, Kansas City
President-Elect.....Ross A. Woolsey, St. Louis
Vice President.....John D. Hayward, St. Louis
Secretary-Editor.....E. J. Goodwin, St. Louis
Assistant Secretary and
Business Manager.....E. H. Bartelsmeyer, St. Louis
Treasurer.....John R. Caulk, St. Louis

Councilors

1st District.....O. C. Gebhart, Oregon
2nd District.....W. T. Elam, St. Joseph
4th District.....J. B. Wright, Trenton
5th District.....J. R. Bridges, Kahoka
6th District.....J. S. Gashwiler, Novinger

Lawrence-Stone...H. L. Kerr, Crane
 Macon.....W. A. Welch, Callao
 Marion-Ralls....J. W. Hardesty, Hannibal
 Marion-Ralls....H. B. Goodrich, Hannibal
 Miller.....W. L. Allee, Eldon
 Mississippi.....A. H. Marshall, Charleston
 Newton.....Clarence Cardwell, Stella
 Nodaway.....W. R. Jackson, Maryville
 Pettis.....A. J. Campbell, Sedalia
 Phelps-Crawford..R. E. Breuer, Newburg
 Pulaski.....C. Mallette, Crocker
 Randolph-Monroe.F. L. McCormick, Moberly
 St. Charles.....A. P. E. Schulz, St. Charles
 St. Francois-Iron-
 Madison-Wash-
 ington-Reynolds.N. W. Hawkins, Bonne Terre
 St. Louis.....John O'Connell, Overland
 St. Louis.....J. D. Thurman, Clayton
 St. Louis.....J. Roy Compton, Clayton
 St. Louis City....Francis Reder, St. Louis
 St. Louis City....Gerald B. Stryker, St. Louis
 St. Louis City....J. Paul Altheide, St. Louis
 St. Louis City....Alphonse McMahon, St. Louis
 St. Louis City....John Smith Young, St. Louis
 St. Louis City....Neil S. Moore, St. Louis
 St. Louis City....Robert Mueller, St. Louis
 St. Louis City....Carl F. Vohs, St. Louis
 St. Louis City....Jerome E. Cook, St. Louis
 St. Louis City....W. T. Coughlin, St. Louis
 St. Louis City....V. V. Wood, St. Louis
 St. Louis City....C. E. Burford, St. Louis
 St. Louis City....Wm. G. Becke, St. Louis
 St. Louis City....A. J. Kotkis, St. Louis
 St. Louis City....Leland B. Alford, St. Louis
 St. Louis City....Henry P. Thym, St. Louis
 St. Louis City....Maxwell Fineberg, St. Louis
 St. Louis City....M. J. Pulliam, St. Louis
 St. Louis City....F. C. E. Kuhlmann, St. Louis
 St. Louis City....F. W. Veninga, St. Louis
 St. Louis City....Lee D. Cady, St. Louis
 Saline.....A. E. Gore, Sweet Springs
 Scott.....H. M. Kendig, Sikeston
 Sullivan.....W. Herington, Green City
 Vernon-Cedar....C. B. Davis, Walker
 Webster.....C. R. Macdonnell, Marshfield

On motion of Dr. C. T. Ryland, Lexington, seconded by Dr. A. H. Marshall, Charleston, the reading of the minutes of the previous meeting was dispensed with and adopted as printed in *THE JOURNAL*.

The President, Dr. E. Lee Miller, Kansas City, read his message and recommendations as follow:

PRESIDENT'S MESSAGE AND RECOMMENDATIONS

It gives me great pleasure to meet you in Columbia at this Seventh-ninth Annual Convention of the Missouri State Medical Association. I am under great obligations to each of you for your cooperation, support and unstinted service during the last year. Your executives have had most extraordinary support and consideration at your hands. You have performed your service with willingness and efficiency, much beyond our deserts.

It has been a year of peace in the Association. We have had no time or disposition to effect matters of radical change. It has, on the other hand, been a period when it seemed more important to have and to hold that which we have found to be the most worthy of our confidence and necessary to our protection. Forces that would have changed the manner in which medicine

is practiced have been met and held in complete abeyance.

Your *JOURNAL* has been well run, your paid executives have been most tireless and, in my opinion, extremely efficient and scrupulously honest and sincere in performing not only the things they are paid to do, but also the greater things for which they do not receive any remuneration. It has been a happy year indeed to work with all the fine men who constitute and run this great Missouri State Medical Association. Gentlemen, to each of you, all of you, I extend my grateful thanks.

However perfect an organization may become in seventy-nine years there are certain minor points in its method of organization that can and should be slightly changed, mainly for the sake of clarification, and extensions to meet the necessity of a progressive application of our great science. The manner and even the method of the practice of medicine can and does change. It becomes necessary, therefore, to commit changes at times in our By-Laws and even in our adopted Constitution through consideration and adoption of amendments. In pursuance with this necessity we have found ourselves with a Special Committee on Maternal Welfare and when you have acquainted yourselves with the fine accomplishments of this Committee, appointed last year, you will agree, I am sure, with the opinion that this special Maternal Welfare Committee should become at once a standing committee. I therefore beseech your favorable consideration of a change in our By-Laws to the end that Chapter VII of these By-Laws be amended to provide for a standing Committee on Maternal Welfare; also I recommend that a standing Committee on Mental Health be likewise legally approved. Each committee shall consist of five members; two members of each to be appointed for a term of three years, two each for a term of two years and one each for a term of one year.

The duties of the Committee on Maternal Welfare shall be to keep in touch with and investigate matters concerning maternal and child welfare. It shall carry on activities in the field of maternal and child welfare and in cooperation with our Committee on Postgraduate Work and the State Board of Health through its Division of Child Hygiene conduct postgraduate courses for the profession and disseminate information of an educational nature before lay groups when deemed advisable to do so.

The duties of the Committee on Mental Health shall be to engage in the promotion of good mental health, the prevention of mental ill health and lend its support toward securing cooperation of all state or governmental agencies in obtaining better treatment of the mentally ill. It shall cooperate with the Committee on Mental Health of the American Medical Association and with the Eleemosynary Board of the State of Missouri.

These amendments are submitted for your approval for the reason that when these committees were established, the By-Laws were not amended so as to make them officially standing committees and no duties were prescribed.

I also recommend the adoption of an amendment to Chapter VII of the By-Laws providing for a new standing committee to be known as the Committee on Health and Public Instruction, to consist of three members to be appointed in accordance with the By-Laws.

The duties of the Committee on Health and Public Instruction shall be to keep in touch with and investigate matters concerned with the public health and carry on such activities in the field of public health and the dissemination of information in relation thereto as

may be deemed appropriate; and shall cooperate with the Bureau of Health and Public Instruction of the American Medical Association and the Board of Health of the State of Missouri.

At the present time we have no committee to cooperate with the Bureau of Health and Public Instruction of the American Medical Association. Many of our sister state associations have such a standing committee working in cooperation with the Bureau at Headquarters of the American Medical Association.

Four reference committees are provided for in Chapter III, Section 4, of the By-Laws, viz: Constitution and By-Laws, Resolutions, Miscellaneous Affairs and Credentials. While the President may appoint such other reference committees as may be considered necessary by him, I submit for your approval the recommendation that this section be amended so as to provide for a Reference Committee on Medical Education and Public Welfare. To this committee could be referred reports of committees dealing with health education and public welfare.

I hope you will favorably consider the necessity of these amendments, as they in no manner modify the present workings of the Association but, by their adoption you can legally clarify their functions and establish proper contact with existing and similar committees in the American Medical Association.

The American Red Cross is attempting to establish a Red Cross Highway Emergency program. Missouri should cooperate with this progressive and necessary humanitarian undertaking. The outline of their intention states that they will cooperate with the state and local medical membership in the matter of highway first aid in major accidents. Stations are to be established where proper materials are available to properly meet these emergencies that are now as scientifically managed as it is possible to do with what material there is at hand.

These injuries involve major fractures, the treatment of which is a new feature of our fracture experience. To better study the necessities of the Red Cross program and the highway fracture problem, I deem it not only expedient but positively necessary that this body approve the appointment of a Special Committee on Fractures, of four or five members, the personnel of which could be appointed by the President, to study, organize the method and to possess the power to line up the Missouri State Medical Association with this desirable and expanding national undertaking. The work of this committee being special, they are of course accountable to this body for approval. I beg you, therefore, to privilege your President with power to appoint such a special committee on fractures for the Missouri State Medical Association.

I ask your interest in and your study of the Integrated Professional Act which, if it could be adopted and passed on grounds similar to that established to regulate the practice of dentistry in Oklahoma, would seem to legally incorporate all the forces necessary in effecting the ideal conditions for the practice of a scientific medicine. I have been impressed with the sincere appreciation of this type of legislation on the part of our membership in St. Louis. Like all things that appear good on the surface, the potentialities concerned with its adoption should be exhaustively studied, before you endorse any change in the present practice act.

I care not to further embarrass you with recommendations. But I do beg your deference that I might be given the privilege of thanking the members of every committee whose report you will later consider. Almost without exception, the committee members have been true to the confidence and responsibility placed in

them. I would particularly commend our "baby" committee concerned with maternal welfare for effective effort. That committee has truly justified in accomplishment your faith shown in their appointment.

It is my prayer that your stay in this fine city of Columbia will be a pleasant and profitable one. One and all of us are everlastingly obligated to the fine General and Local Committees for the special service they have given to make this, the Seventy-ninth Annual Meeting of the Missouri State Medical Association, a most comfortable and pleasant event. We truly are under great obligation to these committees and the citizenship of Columbia in asking and having us as their guests.

Gentlemen, again I thank you for all the service you have so unselfishly done to make my tenure as your executive a most peaceful, pleasant experience. May God prosper your opinion and purpose.

On motion of Dr. W. T. Elam, duly seconded, that part of the message referring to amendments of the Constitution and By-Laws was referred to the Reference Committee on Amendments to Constitution and By-Laws. The remainder of the report was referred to the Council.

The President appointed the following reference committees:

Reference Committee on Amendments to Constitution and By-Laws

Morris B. Simpson, Kansas City, Chairman.
A. P. E. Schulz, St. Charles.
H. C. Brashear, Mexico.

Reference Committee on Resolutions

A. H. Marshall, Charleston, Chairman.
V. Visscher Wood, St. Louis.
W. J. Shaw, Fayette.

Reference Committee on Miscellaneous Affairs

F. G. Mays, Washington, Chairman.
N. W. Hawkins, Bonne Terre.
H. W. Carle, St. Joseph.

Reference Committee on Medical Education and Public Welfare

Rexford L. Diveley, Kansas City, Chairman.
Jerome E. Cook, St. Louis.
R. R. Farthing, Ozark.

Dr. W. L. Allee, Eldon, Chairman of the General Committee on Arrangements, reported as follows:

REPORT OF THE GENERAL COMMITTEE ON ARRANGEMENTS

We have a splendid local committee functioning as the Committee on Arrangements of which Dr. Dudley A. Robnett, Columbia, is chairman, and with your permission I will ask him to make the report of the Committee on Arrangements.

On motion, duly seconded, this report was adopted.

Dr. Dudley A. Robnett, Columbia, Chairman of the Local Committee on Arrangements, reported as follows:

REPORT OF THE LOCAL COMMITTEE ON ARRANGEMENTS

I should like to say that the Boone County Medical Society and the people of Columbia are honored in having this convention here. We hope you will en-

joy your stay and we will try to make it a pleasant one.

The convention has been so splendidly arranged by Dr. Goodwin and Mr. Bartelmeyer that the local committee has had little to do with it.

I think the program shows everything we have planned at this time. From time to time there will be announcements in regard to special arrangements and other matters that may come up. There are the Council luncheon today, the Maternal Welfare Dinner tonight and the Alumni Luncheon tomorrow. The entertainment tomorrow evening will be in the Ballroom following the evening program. It will be given by the Boone County Medical Society and we urge everyone to come. Other announcements will be made and the committee will try to take care of everything that comes up.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, this report was adopted.

DR. E. LEE MILLER, Kansas City, President: The Delegates have been furnished pamphlets containing the reports of the various committees. You are supposed to have read and digested these reports. They were sent to you thinking that we could use less time in the House of Delegates than would be required if these reports were read in full.

The report of the Secretary, Dr. E. J. Goodwin, St. Louis, follows:

REPORT OF THE SECRETARY

The principal activities of the Association will be reported by the various committee chairmen and officers. However, there are a few things of which I should like to speak. One of them is to stress the splendid work that the committees have done throughout the year. The standing committees have continued the work that we have come to expect of them, the fulfilment of their duties in a wholly efficient manner. Several of the newer committees have rapidly grasped the importance of their duties and have become a valuable part of our Association.

During the last year cooperation between the State Board of Health and the Association has become much closer and I feel to the advantage of both organizations and to the public. This has been evidenced in many ways but probably the most important is in connection with the Social Security Act.

Through the Social Security Act Congress made available money for maternal and child health work, the Government to match the money furnished by the respective states. The work in Missouri was placed by the State Board of Health in the department supervised by Dr. W. F. Lunsford, and will be directed by Dr. H. S. Gove, Director, Division of Child Hygiene. An advisory committee was appointed to gain cooperation with medical, dental, nursing and welfare groups. This committee is composed of Dr. E. Lee Miller, Kansas City, President, Missouri State Medical Association; Dr. R. M. Miller, St. Louis, President, Missouri State Dental Association; Miss Grace Frauens, Kansas City, State Nurses Association; Dr. Dudley S. Conley, Columbia, Dean, University of Missouri School of Medicine; Rev. Alphonse M. Schwitalla, St. Louis, Dean, St. Louis University School of Medicine; Dr. W. McKim Marriott, St. Louis, Dean, Washington University School of Medicine; Dr. J. F. Bredeck, St. Louis, Health Commissioner, Missouri State Public Health Association; Mr. J. W. Becker, St. Louis, Secretary, Missouri Tuberculosis Association; Dr. Frank C. Neff, Kansas City, member of the American Academy of Pediatrics; Dr. Ralph R. Wilson, Kansas City, Chairman, Committee on Maternal

Welfare, Missouri State Medical Association, and Mrs. Howard Cook, Jefferson City, Missouri Association of Social Welfare.

The committee met March 3 when an outline of the plan for the work of the Division of Child Hygiene of the State Board of Health was presented. Briefly, the plan which has been submitted to the Children's Bureau of the Department of Labor, will include: The employment of a child hygienist, a pediatrician, an obstetrician and several nurses; educational campaign for the laity; postgraduate courses for physicians; distribution of literature; distribution of toxoid to indigent children.

When the plan is approved by the Children's Bureau it will be carried out by the State Board of Health in cooperation with the advisory committee. Details of the plan will be made public and the profession will be informed through THE JOURNAL.

The Act, among other things, also provides benefits for dependent and crippled children. Plans for making available the benefits under this section are being promulgated by the Crippled Children's Service of the University of Missouri.

Our contact with the laity has been greatly increased during this year. This has been brought about through the Postgraduate Committee, the Cancer Committee, the Committee on Mental Health, the Committee on Maternal Welfare and the Woman's Auxiliary. Opportunity was afforded by the debate on "Socialized Medicine" by the schools to contact a great number by furnishing material for the negative side of the question. The Medical Information Bureau has also brought important contact with the laity.

Many members are still feeling financial stress and several of the county societies have remitted back dues upon the payment of the 1936 dues, to which action the Association has given its approval. In many cases members who had been forced to become inactive and drop out have again become members on payment of current year's dues.

The Association has lost through the death of Dr. Charles H. Dixon, Moberly, his services as Councilor of the 10th District. That vacancy has been filled by the President by the appointment of Dr. Thos. S. Fleming, Moberly. Through the death of Dr. N. W. Jarvis, Festus, the Councilorship of the 21st District was left vacant. The President appointed Dr. C. E. Fallet, De Soto, to fill this vacancy. Dr. C. H. Neilson, St. Louis, resigned as Councilor of the 20th District and Dr. Curtis H. Lohr, St. Louis, was appointed to fill that unexpired term.

The Nominating Committee must submit nominations for the following offices:

Three vice presidents to fill the vacancies of Dr. John D. Hayward, Clayton; Dr. W. A. Braecklein, Higginsville, and Dr. E. C. Robichaux, Excelsior Springs, whose terms expire this year.

The terms of the Councilors in the odd-numbered districts expire this year; the Nominating Committee must nominate members to fill the vacancies of those districts.

Three delegates to the American Medical Association must be nominated to fill the vacancies created by the expiration of the terms of Dr. W. H. Breuer, St. James; Dr. A. R. McComas, Sturgeon, and Dr. W. M. West, Monett. Through the death of Dr. E. P. North, St. Louis, the Association lost one of its delegates and his successor must be named to fill the unexpired term.

We have four candidates for Affiliate Fellowship in the American Medical Association. They are Dr. L. C. Chenoweth, Joplin; Dr. Samuel H. Miller, Joplin;

Dr. Andrew L. Lewis, Sumner, and Dr. Herman D. Jerowitz, Kansas City.

The Association will be host to the secretaries of component societies on Tuesday evening, April 14, at 6 o'clock in the Colonial Room of Hotel Tiger. Dr. Austin A. Hayden, Chicago, Secretary of the Board of Trustees of the American Medical Association will be our guest of honor that evening.

I hope that all members will view the scientific exhibits and the commercial exhibits.

In 1934 the number of members showed a gain of seventeen members. In 1935 there was a gain of twenty-nine members.

Status of Membership

Number of members, January 1, 1935.....	3126
New	158
Reinstated	29 187
Total.....	3313
Dropped	74
Deceased	54
Transferred	30 158
Total, January 1, 1936.....	3155

Of this the total of 185 are Honor Members.

E. J. GOODWIN, Secretary.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, this report was referred to the Council.

The Treasurer, Dr. John R. Caulk, St. Louis, reported as follows:

REPORT OF THE TREASURER

The financial status of the Association as of December 31, 1935, was published in the April issue of THE JOURNAL. We brought down the figures since January 1, 1936, and including March 31, 1936, which show the following.

General Fund

Receipts

Balance, Dec. 31, 1935..\$	3,405.34
Membership dues collected	10,700.50
JOURNAL advertising...	1,665.54
Exhibit space	280.00
Medical Protective Co. (rent)	135.00
Subscriptions (nonmembers)	11.60
Sales tax	2.08
Refund for advance for meeting expense	11.00
Total	\$16,211.06

Disbursements

Vouchers paid	\$ 6,936.43
Transferred to Legislative Fund	1,360.00
Total	8,296.43
Balance, March 31, 1936	\$7,914.63

Legislative Fund

Receipts

Balance, Dec. 31, 1935..\$	2,819.69
Transferred from General Fund	1,360.00
Balance, March 31, 1936	4,179.69 4,179.69

Defense Fund

Receipts

Balance, Dec. 31, 1935..\$	1,815.34
	1,815.34

Disbursements

Vouchers paid	303.58	303.58
Balance, March 31, 1936		1,511.76

Sinking Fund

Balance, Dec. 31, 1935, and March 31, 1936..\$	3,069.00	3,069.00
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These figures show that there was a balance of \$11,109.37 on hand January 1, 1936, and receipts from membership dues, advertising and other sources of income amounted to \$12,805.72. During the period January 1 to March 31, 1936, there was disbursed by vouchers properly endorsed and signed by the officers, \$7,240.01. This leaves the financial status at March 31, 1936, as follows:

General Fund	\$ 7,914.63
Legislative Fund	4,179.69
Defense Fund	1,511.76
Sinking Fund	3,069.00
Total.....	\$16,675.08

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, this report was referred to the Council.

The report of the Committee on Scientific Work, Dr. E. J. Goodwin, Secretary, follows:

REPORT OF THE COMMITTEE ON SCIENTIFIC WORK

The Committee on Scientific Work has determined the scope of the scientific proceedings of the Association which is incorporated in the program. There are fewer papers to be read at this Session than have been presented in recent years because of the shortening by one day of the Session. Thirty-five papers are scheduled.

The Committee has tried to present topics that would be of specific interest to the general practitioner while not overlooking some important articles from specialists.

Three guest speakers have been invited, namely: Dr. Irvin Abell, Louisville, Professor of Surgery, University of Louisville School of Medicine; Dr. Joseph L. Baer, Chicago, Associate Clinical Professor of Obstetrics and Gynecology, Rush Medical College, University of Chicago, and Dr. Austin A. Hayden, Chicago, Secretary, Board of Trustees, American Medical Association.

Because of the shortness of the Session no open meeting has been scheduled. Two night sessions will be held, one by the Committee on Maternal Welfare to which all members are invited to be held on Monday night, April 13, and one on Tuesday night, April 14, when Dr. Austin A. Hayden, Chicago, will exhibit a motion film showing the activities of the American Medical Association headquarters in Chicago. Following this demonstration the Boone County Medical Society will be hosts at an entertainment to which all members and guests are invited.

The dinner for secretaries of the county medical societies, at which secretaries are guests of the Association, will be given Tuesday evening.

E. J. GOODWIN, Chairman,
J. E. STOWERS,
W. T. COUGHLIN.

DR. E. J. GOODWIN, St. Louis, Chairman: There is nothing for me to add to the report printed in the pamphlet except to announce that we have a telegram from one of our invited guests, Dr. Irvin Abell, Louisville, Kentucky, saying that he is compelled to go to Florida on account of illness and cannot be with us.

On motion of Dr. Frank G. Nifong, Columbia, the Secretary was instructed to send Dr. Abell a telegram expressing the regret of the Association at his inability to be present on account of illness.

On motion of Dr. C. T. Ryland, Lexington, duly seconded, this report was adopted.

The report of the Postgraduate Committee, Dr. Charles H. Neilson, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON POSTGRADUATE WORK

A function of the Missouri State Medical Association is to aid its members in increasing their knowledge and keeping up with new discoveries and treatments. The great medical centers such as St. Louis, Kansas City, etc., are more apt to keep their members informed on all the advancements in the practice of medicine than are the small towns and country districts. The postgraduate work which has been carried on for some years has been successful in helping to overcome this difficulty. Expert physicians have been sent to the various county societies, councilor districts and county groups whenever they have been asked for. Often they would ask for certain members and in so far as we were able these physicians were always sent.

I feel that this type of postgraduate instruction is well worth while. I also feel that the general membership of the Missouri State Medical Association has not availed itself of this type of postgraduate instruction to the fullest extent. Certain counties and councilor districts have been doing good work in this respect but others have made no effort to contact the Postgraduate Committee.

It would seem to the Chairman of this Committee that all the thirty-one councilor districts should have one or two meetings a year and this meeting should include clinic, lecture, and so forth, which should extend over an entire day and evening.

Since May 1, 1935, to April 1, 1936, forty-one members were sent as speakers to twenty-one meetings of eleven component societies. The societies to whom speakers were sent since the last report of the Postgraduate Committee were Buchanan, Cape Girardeau, Cole, Lincoln, Marion-Ralls, Nodaway, Pettis, Randolph-Monroe, Six County Group, South Central Counties and the Ninth Councilor District. Speakers were sent from St. Louis, Kansas City and Columbia. The reports sent us from these respective societies have been enthusiastic and it seems that the efforts of the Postgraduate Committee were worth while.

A year ago in November Dr. M. Pinson Neal, Columbia, suggested that the Association put on an intensive program and the subject which I would like to stress is "Appendicitis." I feel that the majority of the laity, even the majority of physicians, is sometimes at fault and I also feel that if we were to contact each councilor district and put on a program, which should be broad and should include the lay public, we would accomplish a great deal for the people and the profession of the State of Missouri. This program should consist first of posters, carefully prepared and placed in the school rooms, in stores and in all convenient public places in a given councilor district; and at some suitable date speakers should be sent to this district and a public address should be given to the lay population of the district and technical lectures and demon-

strations and perhaps clinics should be given for the physicians. I am in hearty sympathy with this program. It has not been done up to this time not because of lack of interest but because it is a rather large undertaking and would demand a good deal of time to prepare the program, the posters and arouse the interest in the councilor districts.

I am recommending that this type of postgraduate instruction, together with the postgraduate instruction which has been carried on for the past years, be carried out. I feel that the Missouri State Medical Association will do more for its general membership by making a strenuous effort in this regard.

I wish to thank the presidents, the councilors and, in fact, the whole membership of the Association for their cooperation and interest in the work that has been carried out in the past number of years.

C. H. NEILSON, Chairman,
M. PINSON NEAL,
REXFORD L. DIVELEY.

DR. C. H. NEILSON, St. Louis, Chairman: The work this year has been carried out along the same lines as for two or three years past. Whenever councilor districts or county societies have asked for speakers from the larger centers we have sent them and the reports that have come back were favorable. This coming year we recommend that this type of postgraduate instruction be carried out as well as an intensive campaign to instruct physicians and the laity on the subject of appendicitis. We hope in the near future to contact each Councilor and have him help us arrange a program. We make that as a recommendation.

On motion of Dr. W. T. Elam, duly seconded, this report was referred to the Council.

The report of the Committee on Publication, Dr. J. C. B. Davis, Willow Springs, Chairman, follows:

REPORT OF THE COMMITTEE ON PUBLICATION

The 32nd volume of THE JOURNAL was completed with the December issue. During 1935 there have been published in THE JOURNAL ninety original articles, four special articles, fifty-six editorials, one hundred forty-three news items, sixty-six obituaries, ninety-nine society proceedings including the proceedings of the State Association, ten Woman's Auxiliary reports, eleven miscellaneous articles, ninety-seven book reviews and forty-two commercial announcements. There were 506 pages of reading material and 324 advertising pages. There were 141 books received during the year for review in THE JOURNAL and distribution to medical libraries in the state.

Advertising in THE JOURNAL from January 1, 1935, to December 31, 1935, earned \$6,707.00, with \$697.00 to be collected, totalling \$7,404.00. Subscriptions of non-members amounted to \$66.50, making \$7,470.50 actually earned by THE JOURNAL. The cost of printing THE JOURNAL was \$5,246.03; the cost of illustrations, \$224.80, making the total cost of production \$5,470.83.

J. C. B. DAVIS, Chairman,
WALTER BAUMGARTEN,
WM. A. BLOOM.

DR. J. C. B. DAVIS, Willow Springs, Chairman: I trust you have scanned this report carefully; it is worthy of your attention. I am much pleased with the report we were able to make this year and wish to commend our Secretary and his force of workers on the success of the work in the last year.

On motion of Dr. J. S. Gashwiler, Novinger, duly seconded, the report was referred to the Council.

The report of the Committee on Public Policy, Dr. J. F. Harrison, Mexico, Chairman, follows:

REPORT OF THE PUBLIC POLICY COMMITTEE

The last report of the Public Policy Committee was made at the Excelsior Springs meeting in 1935 prior to the adjournment of the 58th Session of the Missouri Legislature. Nothing occurred subsequent to the Annual Meeting to make it necessary to add to the report as printed at that time, except that there was no change made in the Medical Practice Act. Since the Excelsior Springs meeting nothing of importance has been called to the attention of the Committee.

It is the judgment of this Committee that the present Medical Practice Act, while various defects may be pointed out, has been on the whole very satisfactory and has withstood tests of the court. It is the feeling, therefore, on the part of this Committee, that any changes or amendments that may be proposed should receive very careful attention. On account of the number of measures and bills that are introduced at each session from various sources, either ill advised or detrimental to both the laity and the profession, it requires a large portion of the Committee's time to resist the enactment of such measures. This greatly handicaps the work and efficiency of the Committee in promoting and putting through new and constructive legislation.

Permit the Committee to again stress the importance of the auxiliary members of the Public Policy Committee (indeed every member of this Association should feel that he is an auxiliary member of the Public Policy Committee) representing the component societies of this Association. All such members have the opportunity of obtaining by personal contact the views of candidates for the legislature, both national and local. Contact with the legislators and prospective legislators in their respective home environment is the only way of impressing them with the importance of such legislation as this organization of civic and professional ideals promotes or opposes.

There could be no greater folly than to leave a matter of this importance up to a committee of three members to contend with during the heat and excitement of the legislative session.

It is the Committee's desire that there shall be free and full discussion of matters pertaining to the activities of this Committee. Such matters as may be put forward and approved by the Association will receive the diligent and careful attention of the Public Policy Committee.

J. F. HARRISON, Chairman,
W. L. ALLEE,
W. H. BREUER.

On motion of Dr. H. L. Kerr, Crane, seconded by Dr. E. P. Heller, Kansas City, this report was referred to the Council.

The report of the Committee on Defense, Dr. C. E. Hyndman, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON DEFENSE

Status of Cases

Cases pending May 1, 1935.....	13
Threats pending May 1, 1935.....	5
New cases (May 1, 1935, to March 15, 1936).....	11
New threats (May 1, 1935, to March 15, 1936).....	1
Cases settled (May 1, 1935, to March 15, 1936).....	6
Threats which have been dropped.....	5
Cases pending March 15, 1936.....	18
Threats pending March 15, 1936.....	1
Financial assistance rendered (May 1, 1935, to March 15, 1936)	\$480.48

This report is only a portion of the malpractice suits filed throughout the state and represents only those cases which have been referred to the Defense Committee for assistance.

Of the six cases settled during the year two were dismissed and three were settled out of court for small considerations. The one case that went to trial resulted in a verdict for the physician defendant.

Financial assistance was rendered in three cases.

The cooperation of the Councilors and members of the Association has been most commendable.

CHARLES E. HYNDMAN, Chairman,
M. L. KLINEFELTER,
O. B. ZEINERT.

DR. C. E. HYNDMAN, St. Louis, Chairman: There is little difference in our report from that of last year, but you must remember that in this report we submit only part of the malpractice suits brought in the state. Our list represents less than one sixth of the cases filed in this state last year. We obtained this information from the insurance statistics. The cases this year have increased considerably over the number filed in the last two years.

The cases brought to our attention are only those that warrant the assistance of the Committee, and most of them are settled with small judgments. This year three cases were settled out of court for nominal sums. The only case that went to trial was one in which we received a verdict for the defendant. The cooperation of the Councilors has been especially commendable.

I should like to recall to members that in order for this Committee to give you advice that is of value it is necessary to have the particulars in the case. It is hard to get a doctor to write us exactly what he did and why the suit is filed. We like to know why the suit is filed. Also, when expert testimony is requested the Councilor can help if he will personally interview the doctors and find out the particulars.

On motion of Dr. J. S. Gashwiler, Novinger, seconded by Dr. A. H. Marshall, Charleston, this report was referred to the Council.

The report of the Committee on Medical Education and Hospitals, Dr. Dudley S. Conley, Columbia, Chairman, follows:

REPORT OF COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Following up the report that was made to the Council at its annual meeting in St. Louis, November 19, 1935, the work on the state hospitals is moving forward. The contracts have either been let or are just on the point of being let.

Hospitals are still in an overcrowded condition, accommodating many more patients than their capacity; and even with the contemplated additions it would seem that they will still be short of available beds.

We are glad to report that the Council on Medical Education and Hospitals of the American Medical Association voted on December 9, 1935, to rescind their action in regard to the approval of two year schools and to grade each school on its own merits.

The complete report and future policy of the Council on Medical Education and Hospitals of the American Medical Association as to medical education will not be known until after the meeting of the American Medical Association in Kansas City, May, 1936.

DUDLEY S. CONLEY, Chairman,
C. A. GOOD,
L. W. DEAN.

DR. DUDLEY S. CONLEY, Columbia, Chairman: I want to call your attention to the fact that the Council on Medical Education and Hospitals of the American Medical Association did rescind its action in regard to two year medical schools. We think the resolution of our Council last fall was largely responsible for that. For the support you gave the University of Missouri I wish to thank you on behalf of the University and personally on behalf of the Medical School.

On motion of Dr. W. T. Elam, St. Joseph, seconded by Dr. J. S. Gashwiler, Novinger, this report was referred to the Committee on Miscellaneous Affairs.

The report of the Committee on Cancer, Dr. Ellis Fischel, St. Louis, Chairman, follows:

REPORT OF COMMITTEE ON CANCER

In carrying out the recommendations approved by the House of Delegates last year the activities of the Committee on Cancer of the Missouri State Medical Association were, briefly, as follow:

The general plan of the state educational campaign for the profession and the laity carried on last year was continued. The general subject for presentation to county medical societies was "Cancer of the Skin, Lip and Oral Cavity." The chairmen of the various sections into which the state is divided have been actively at work in arranging meetings and with the help of the councilors of the districts and the secretaries of the county medical societies, meetings were arranged and teams sent out from Kansas City, St. Joseph, St. Louis and Columbia. To date nineteen county medical societies have held cancer meetings and five have been scheduled for the near future. Thirty-six lay educational meetings have been held throughout the state. Thirty-four physicians have participated in these lay and scientific cancer meetings. Maps showing the location of the meetings are on display in the Cancer Exhibit.

We hope to obtain better cooperation in many of the counties than has been manifested in the past toward combining lay meetings with the meetings of the county medical societies. By organizing a lay meeting to take place the same day which the county medical society devotes to a scientific session on cancer the expense of providing qualified speakers for both meetings will be materially lessened, and this will also lighten the burden upon those responsible for organizing the meetings.

The Tumor Clinic at Fulton State Hospital No. 1 is in the second year of operation under full control of the Committee on Cancer of the Missouri State Medical Association. Mr. Ed. Jameson, President of the Board of Managers of the State Eleemosynary Institutions, invited the members of the Committee on Cancer to meet with him at the Jefferson Hotel on September 2, 1935, and at this meeting the plans for the increase in the facilities of all state eleemosynary institutions were discussed in great detail and each member of the Committee on Cancer was requested to contribute ideas which might be incorporated in the plan, already approved, to devote one floor of the new hospital building at State Hospital No. 1 to the care of indigent cancer patients. Mr. Jameson again asked the members of the Committee on Cancer to meet with him in Jefferson City on February 21, 1936, to pass upon the details of the floor plans of the hospital for cancer patients, the installation of the deep therapy roentgen ray equipment and the outpatient clinic. Your Committee feels that if the present close co-operative spirit is maintained between the Eleemosynary Board and the resident staff of State Hospital

No. 1 and the Committee on Cancer, the operation of the tumor clinic at Fulton will continue to be a credit to all concerned. The following is a report of the activities of the Tumor Clinic for the period March 1, 1935, to March 1, 1936:

A total of fifty-five patients, residents of thirty-five counties, were admitted to the Clinic. Nineteen of these were residents of the various state hospitals and the remaining were distributed through the following counties:

Audrain	5	Ralls	2
Boone	3	Shelby	1
Callaway	4	Randolph	2
Miller	2	Johnson	1
Marion	2	Cole	1
Monroe	7	Cooper	1
Montgomery	1	Cass	1
Pettis	2	Lafayette	1

A total of 234 visits by these patients were made to the clinic during the year; seventy-five radium treatments were given, nine tumors were surgically removed, twenty-seven biopsies and seven fulgurations were performed.

At a meeting of the Council of the Missouri State Medical Association in November the Committee on Cancer proposed to send to the members of the Missouri State Medical Association a reprint of the "First Year's Operation of the Tumor Clinic at Fulton State Hospital," together with a letter giving information about the Clinic. This motion was adopted and the letter was sent to approximately 3300 physicians. The Missouri State Committee of the American Society for the Control of Cancer agreed to pay half the expense connected with this effort.

On Friday, March 13, your Chairman called a meeting of forty-two physicians and laymen representing the Missouri State Medical Association, the State Board of Health and the Eleemosynary Board, to meet Dr. C. C. Little, Managing Director of the American Society for the Control of Cancer, at dinner at the University Club, St. Louis. This was strictly a business meeting for the purpose of obtaining from Dr. Little valuable suggestions and advice in reference to better cancer control work in the State of Missouri.

The American Society for the Control of Cancer has determined to stress lay education in reference to cancer and toward this end has enlisted the interest of the Federation of Women's Clubs. Already this interest has been manifested by requests for speakers from many women's organizations in various parts of the state. It is anticipated that these requests will become increasingly frequent and it is hoped that members of the Missouri State Medical Association will qualify themselves to give interesting and informative talks about cancer to lay audiences. It is recommended that the Committee on Cancer work in close cooperation with the Missouri State Committee of the American Society for the Control of Cancer in this matter of lay education and it is desired that as many physicians as possible participate in this work.

Through the cooperation of the Missouri State Committee of the American Society for the Control of Cancer, the services of a full time secretary have been available to the Committee on Cancer. In addition, the Missouri State Committee has furnished literature free of charge for distribution at cancer meetings both for lay and professional consumption, and one half of the expense of the cancer "teams" has been borne by the Missouri State Committee of the American Society for the Control of Cancer. The entire expense borne by the Missouri State Medical Association for the activities of the Committee on Cancer has been \$221.41,

and this represents only a very small fraction of the total cost of cancer educational work in the State of Missouri.

Recommendations

Briefly the recommendations for the coming year are:

1. That the program of the Cancer Committee be continued, and that the fourth year of the five year plan be devoted to presenting the subject of "Cancer of the Rectum and Large Bowel."

2. That an Advisory Committee be formed to act in an advisory capacity to the Committee on Cancer.

3. That a postgraduate course of instruction on cancer be instituted at the Missouri University Medical School for the physicians of the state; this course to be offered monthly by the pathological department plus one representative of a given specialty in the field of cancer who will be invited each month to discuss all phases of cancer which pertain to his particular specialty.

4. That the members of this Association whenever possible use their influence upon the legislators of the State of Missouri to insure the appropriation of an adequate amount of state funds toward the adequate care of indigent citizens of the state who may be afflicted with cancer.

ELLIS FISCHER, Chairman,
DUDLEY ROBBETT,
FLOYD H. SPENCER.

DR. ELLIS FISCHER, St. Louis, Chairman: This report is very long but I hope you will take time to read it because, long as it is, it really is condensed in showing the activities of the Committee on Cancer during the last year. There are a few things which I think require some elaboration and explanation.

One is that the work of the Committee on Cancer and the Committee on Postgraduate Work necessarily dovetail to a large extent and their activities must be united to the advantage of all concerned. One is the saving of expense and effort to the component county medical societies in putting on really good medical meetings, part of which might easily be devoted to cancer and the other part to other subjects of equally vital interest to the medical profession. It could easily be arranged to have lay meetings of great educational value. You know the education of the laity is considered important in relation to cancer control work and our Committee has always stressed the importance of lay meetings.

With reference to the report I should like again to request the councilors and secretaries of medical societies to give the Committee on Cancer the best co-operation they can, especially in answering letters. It is a big job to try to run anything like an adequate cancer educational program in a state as large as Missouri and with the number of component county medical societies. When the Committee asks if you want a meeting, or when will you have a meeting, it is done in a frank spirit of cooperation, not trying to thrust anything upon the county society, but unless you say you do not want it we have to keep on addressing letters to you and trusting to receive a reply.

You can see the report lists the number of meetings held throughout the year, the number of physicians who have taken part in the program and the approximate attendance at these meetings.

Another point I should like to bring to your attention is the report of the work at the tumor clinic at Fulton. That work is growing in importance and there is today a big movement on foot to make that tumor clinic at Fulton an outstanding cancer institute. Those who are not familiar with the cancer problem throughout

the world today hardly know what it means to have a cancer institute. We can have a cancer institute in the State of Missouri, an outstanding scientific place that will be recognized all over the world as doing adequate cancer research and treatment provided it is carried along in the right sort of way and, of course, by that we mean free of political control. At present the tumor clinic is absolutely under the control of the Missouri State Medical Association through the Committee on Cancer. The present Eleemosynary Board supports the State Medical Association 100 per cent and, if we can maintain that spirit in the Board, there is no reason why our State Medical Association should not continue to maintain control over the really magnificent tumor clinic at State Hospital No. 1. It may eventually be segregated from the hospital and be its own tumor clinic.

In reference to that I wish to say that almost all of you received a letter which was approved at the meeting of the Council in St. Louis in November describing the work of the tumor clinic at Fulton. I hope you have all read it. I am surprised to know that some of you have not received it. I assure you these letters were sent out and should have been read because they explain in detail what the tumor clinic is trying to accomplish.

In the same connection the suggestion has been made that there should be a tumor clinic at Hospital No. 3, and also at the two other state institutions. Off-hand, I cannot see that we could better serve the citizenry of the state if we had three more, and the Committee on Cancer thinks this would be a great mistake at the present time. It is a big job and an expensive job to establish the personnel and train persons to properly supervise a tumor clinic and we feel that after we have demonstrated that the tumor clinic can operate free from politics under the control of the Missouri State Medical Association, show that it is a good going concern, then perhaps would be an opportune time to establish tumor clinics in other portions of the state. Naturally, the Committee on Cancer believes that if any physicians wish to form a tumor clinic in any city of the state it would by all means meet with the approval of the members of the Committee, but the Committee on Cancer should not be asked to be responsible for more than one tumor clinic at this time.

There is nothing that requires special recommendation. We would like to have authority given to the President of the Association, in consultation with the Committee on Cancer, to have an advisory committee to the Committee on Cancer appointed. The three men who now constitute the Committee on Cancer are hardly enough to get the reaction throughout the state to the program. There has been developed a great deal of interest among the members of the Association in the work of the Committee and we feel it would redound to the advantage of every one concerned if an advisory committee were appointed that might perhaps at the Annual Meeting of the Association help to iron out some of the problems that present themselves.

With reference to the third recommendation in postgraduate course, that would be a most interesting experiment and if the Missouri University Medical School is willing to undertake the experiment I think it would be well worth approving that recommendation and let us see what can be done with it.

On motion of Dr. J. S. Gashwiler, Novinger, duly seconded, this report was referred to the Committee on Medical Education and Public Welfare.

The report of the Committee on Medical Economics, Dr. Carl F. Vohs, St. Louis, Chairman, follows:

REPORT OF COMMITTEE ON MEDICAL ECONOMICS

The state organization at its meeting in Excelsior Springs last May appointed a subsidiary committee to the Committee on Economics to conduct a reasonably extensive survey of the facilities for medical service existent in the state and evolve if possible a county medical society plan which could be universally adopted. This committee, working with the Medical Economics Board of the St. Louis Medical Society whose membership it overlapped, decided to use the Washington, D. C., plan as a basis in developing a plan for the delivery of medical service throughout the state.

On November 19, 1935, the Committee on Medical Economics and its Subsidiary Committee met in joint session and drew up the following resolution:

Resolved, That it is the consensus of opinion of the Medical Economics Committee of the State Association and its Subsidiary Committee, the Committee on County Medical Society Plans, in joint session, that the plan which is now in operation in St. Louis (patterned after the Washington, D. C., plan) be recommended for adoption to the Council of the State Association as a model plan to be followed in the establishment of similar bureaus in other cities and counties of Missouri; be it further

Resolved, That a state organization be formed to be known as the Medical Economics Security Administration of the State of Missouri to be affiliated with the national organization when so formed.

These resolutions were unanimously adopted by the Council and if adopted by the House of Delegates will become the approved plan and be known as the Missouri State County Medical Society Plan.

The committee was concerned about the unnecessary duplication and reduplication of existing experiments before the original experiment has proved its worth as a basis for future study. It was also concerned with ways and means through which that constant progress that has ever characterized Missouri medicine may continue to take place in an orderly and sane fashion. It was, therefore, decided first to put the plan into operation in St. Louis and as experience and a properly trained personnel developed to spread it in definite sequence to other parts of the state as it is requested.

The plan in brief consists of three Bureaus:

1. The Medical-Dental Service Bureau.—A post-payment arrangement for medical, surgical and dental bills.

2. Group Hospital Service.—A prepayment plan for definite hospital care.

3. Central Admitting Bureau.—A plan by which the very low income group and indigent patient will be taken care of by the medical profession, the dentists and hospitals in cooperation with relief authorities, county courts, public welfare boards and community chests.

This committee feels that the principles of this plan are sound and are workable. They are to the joint interest of the low income group and indigent sick, public economy, the hospitals and the professions of medicine and dentistry.

The State Dental Society has given its complete approval to the plans and is cooperating to the fullest extent.

The committee further recommends:

1. The adoption of a by-law as follows: The State Association or a county society in manner approved by the State Association, may undertake and coordinate all sickness, care of indigents and low income groups, through agreements with public officials, and with physicians and others, and by the use of contributions, cooperative funds and other means, provided only that

free choice of physician within such agreements shall be retained and that responsibility of physician to patient and all other agreements and tort relationships with patients shall remain as though the dealings were direct between physician and patient.

2. That a study be made of the Missouri Medical Practice Act in cooperation with the State Board of Health with a view of such revision as may more effectively safeguard public health.

3. That a study be made of the Missouri Workmen's Compensation law with a view of introducing amendments which might enable our Act to be as effective as that adopted by the State of New York and to include the right of free choice of physician.

4. The introduction of a bill giving physicians a right of lien in accident cases.

5. The appointment of a special committee to study in cooperation with the Committee on Public Policy the advisability of the introduction of a bill creating a public corporation of all licensed physicians holding the degree of Doctor of Medicine in Missouri with a view to formulate and enforce rules of professional conduct for all such physicians.

Approved by Committee on Medical Economics	Subsidiary Committee
J. W. Love, Chairman,	CARL F. VOHS, Chairman,
E. L. JOHNSTON,	E. P. HELLER,
CARL F. VOHS.	D. D. STOFER,
	ARCHER O'REILLY,
	JOEL HARDESTY.

DR. CARL F. VOHS, St. Louis, Chairman: You will remember that our Committee was appointed last year at Excelsior Springs and the ground has been found fertile in Missouri. The Committee has made definite progress as you will note by reading the report. We have a definite goal and within the next year we will probably get somewhere with our plan for medical economics in the State Association. The plan is working in St. Louis and when the personnel is developed it will spread throughout the state. We would like to call your attention to the Committee's recommendation as to an amendment of the By-Laws. I think there is nothing further to be added to the report.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, that portion of the report dealing with the amendment to the By-Laws was referred to the Reference Committee on Amendments to the Constitution and By-Laws and the remainder to the Council.

The report of the Committee on Mental Health, Dr. G. Wilse Robinson, Sr., Kansas City, Chairman, follows:

REPORT OF THE COMMITTEE ON MENTAL HEALTH

The members of the Committee have had several meetings during the year discussing and outlining plans. There has not been as much interest manifested on the part of the profession throughout the state in matters of mental health as we had hoped. Dr. Goodwin, Secretary of the State Association, sent letters to the various secretaries throughout the state calling their attention to the work of this Committee. He also wrote an excellent editorial in the January issue of THE JOURNAL on the subject, "Mental Health." Dr. E. Lee Miller, President of our Association, asked the Committee on Mental Health to cooperate with the State Eleemosynary Board in the matter of contemplated improvements and extensions of our state hospitals.

There was one meeting at Jefferson City with the president and architects of the board, attended by Dr. E. F. Hootor, Dr. G. A. Johns and Dr. G. Wilse

Robinson. Some of our state hospitals, especially the hospital at Farmington, have been visited. The needs and contemplated improvements were considered. A very excellent and much needed plan of improvement of present buildings and the construction of new buildings is under consideration at this institution. All of our state institutions are well managed and supervised and there is, as can be noted in the last few years, a great improvement in the care and treatment of the inmates.

There is also contemplated a very much needed hospital for the criminal insane. There has been talk of placing this hospital at Fulton under the care of the Eleemosynary Board. The members of the Mental Health Committee believe this to be a mistake. They believe that it should be placed at Jefferson City under the supervision of the Penal Board. The insane criminal is the most dangerous type of criminal that we have and the greatest possible degree of security should surround him.

There have been few meetings during the year with medical societies. The chairman spoke before the Pettis County Medical Society on "Mental Health" and a very interesting meeting on Mental Health will be held at Kirksville under the auspices of the Adair-Schuyler County Medical Society on April 10. Talks will be delivered before the students of the Teachers College, before a semi-public and medical meeting, and also before the medical society. This meeting will be attended by Drs. Hctor and Robinson, members of the Committee.

We trust that during the coming year more medical societies will be interested in this matter. It is our object and desire to contact as many medical men throughout the state as possible and discuss with them the problems of mental health. The importance of this matter cannot be overestimated, as it is well known that there are more inmates of mental hospitals throughout the United States than all other hospitals combined; more inmates in these institutions than in all colleges and universities, and the number of those suffering from mental health is rapidly increasing. It is well to remind you that the number of patients in institutions constitutes a very small percentage of those suffering from some form of mental ill health.

We believe that proper treatment, after proper diagnosis, of these patients given early can materially lessen the number who will have to be sent to an institution for treatment for the more severe types of mental ill health.

G. WILSE ROBINSON, Chairman,
F. M. GROGAN,
E. D. BASKETT,
G. A. JOHNS,
E. F. HCTOR.

DR. G. WILSE ROBINSON, Kansas City, Chairman: In addition to the published report we wish to offer the following recommendation:

The Committee on Mental Health recommends that the House of Delegates and the Council endorse the organization of a State Mental Hygiene Society with headquarters at Columbia. We further recommend that the physicians of the state interest themselves in supporting and controlling the organization and the various affiliated societies.

As perhaps you are well aware there has been for some years a so-called State Mental Health Association with headquarters in St. Louis but it is not state wide in its activities. The desire of the physicians is to make this organization state wide in its activities and influence and desire the official endorsement of this organization. They believe if they have the endorsement of the State Association that more physicians will

be interested and become active in mental hygiene societies, even in the smaller cities and communities in the state. It is a medical matter and should be controlled by the physicians and not by individuals who are often inimical to the medical profession.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, this report was referred to the Reference Committee on Medical Education and Public Welfare.

The report of the Committee on Maternal Welfare, Dr. Ralph R. Wilson, Kansas City, Chairman, follows:

REPORT OF COMMITTEE ON MATERNAL WELFARE

Being the "baby committee" of the State Association, the first meeting and organization of plans was held at a luncheon in Kansas City, July 31, 1935, at the President Hotel. At this meeting the entire membership was present as well as the President, Dr. E. Lee Miller, and Mr. E. H. Bartelsmeyer, and also Dr. T. M. Bourke, President of the State Board of Health. The program for the year was outlined and the meeting adjourned with all those in attendance manifesting unusual interest in the work ahead.

The Committee held its second meeting in Jefferson City at a luncheon at the Missouri Hotel on February 19, 1936. In attendance were all of the members of the Committee, except one, and in addition the President, Dr. E. Lee Miller, and Mr. E. H. Bartelsmeyer. The Committee then adjourned until a meeting to be held in Columbia, April 13, 1936.

Before attempting to summarize the results of the efforts of the Maternal Welfare Committee it is our desire to emphasize our position for the first year's work. Our objective has been to make the medical profession "maternal welfare conscious." During this first year no attempt has been made to reach any lay organization or individual. Thus far in our program there have been no activities directed toward the Social Security Program. In fact, to repeat, our whole effort has been confined within the membership of the Missouri State Medical Association.

It is, furthermore, the plan of the Committee in doing this pioneer type of work to transact its affairs more or less by the questionnaire method rather than by frequent meetings which would incur unnecessary expense. Also, when meetings were held, the questionnaire method had already crystallized ideas with the net result of a great conservation of time.

Summary

A. Specific accomplishments thus far:

1. Changes in the standard birth certificates have been proposed and accepted by the State Board of Health.

2. A questionnaire form has been proposed and accepted by the State Board of Health to be used as the source of supplemental information in all cases of maternal deaths occurring in the State.

3. With the advice and consent of Dr. E. J. Goodwin, a "Query Column" has been established in the Missouri State Medical Journal to be edited by members of the Maternal Welfare Committee.

4. A scientific exhibit is prepared and will be presented at the State Meeting in Columbia.

5. This same exhibit will be presented to the American Medical Association in Kansas City in May, 1936.

6. A Missouri morbidity standard has been established as follows: "A puerperal case shall be considered morbid whose temperature runs a daily peak of 100.4 or above for three consecutive days excluding the first twenty-four hours."

7. Speakers on the subjects of various phases of maternal mortality have been furnished the following organizations during the year:

a. The medical section of the Missouri Academy of Science.

b. The Missouri Public Health Association.

c. The Kansas City Southwest Clinical Society.

8. The State Board of Health has been kind enough to furnish the Maternal Welfare Committee a duplicate report of all maternal deaths occurring in the state each month.

9. Each member of the Committee has been assigned specific committee work as follows:

a. Scientific Exhibits, Dr. W. T. Stacy.

b. The Midwifery Problem, Dr. E. L. Dorsett.

c. Criminal Abortions, Dr. J. D. James.

d. Lay Publicity, Dr. B. G. Hamilton.

e. Editor for the "Query Column," Dr. E. Lee Dorsett.

10. With the idea of establishing an annual custom, arrangements have been completed for a Maternal Welfare Committee dinner at the State Meeting in Columbia. At this meeting members of the Committee will present interesting cases of maternal deaths occurring in their own practices. Members of the Association who have been so unfortunate as to have had maternal deaths are invited to sit in at this report and the subsequent comments.

11. By the consent and cooperation of the Program Committee and the officers of the State Association a nationally known obstetrician, Dr. Joseph L. Baer, Chicago, has been invited to give a critique of the presentations of the cases made at this dinner. All members of the Association, however, are welcome at both the dinner and the discussion thereafter by purchasing a ticket.

12. On the morning of April 14, Dr. Joseph L. Baer will appear as a guest speaker under the special auspices of the Committee on Maternal Welfare.

13. The Chairman of the Committee has been included in the membership of a special Advisory Committee for the State Board of Health and has begun to function in that respect.

14. The Chairman of the Committee has accepted a place on the program at the meeting of the American Maternal Welfare Committee, which meets during the A. M. A. Convention in Kansas City in May.

15. The Chairman of the Committee made a brief preliminary report at the meeting of the Councilors in St. Louis on November 19, 1935.

16. The membership of the Missouri State Medical Association has been surveyed and men throughout the state with special obstetrical training or experience are classified in a reserve position to be used as auxiliary forces in carrying out special ideas or schedules.

In view of the conditions encountered and as a result of the early investigation of the Maternal Welfare Committee, it respectfully offers the following recommendations:

B. Proposed objectives:

1. That the above program, as outlined, should be fostered and carried out in so far as advisable and feasible for the next three years.

2. That the state be divided into territorial units; e. g., the Councilor Districts, for the purpose of unified investigations and approaches.

3. That the President of the Association appoint a special assistant from that respective Councilor District who is interested in obstetrical problems in order to further any program or schedule.

4. That the Committee on Postgraduate Work assist the Committee on Maternal Welfare in establishing

"refresher courses" and in doing extension work over the state.

5. That the Committee on Scientific Work assist the Maternal Welfare Committee in selecting one nationally recognized speaker for each Annual Meeting of the Association.

6. That there shall be the establishment of an annual award, although nominal in monetary value, for the best article appearing in the Missouri State JOURNAL along the lines of maternal mortality during the year.

7. That some influence be established and popularized to promote the universal application of the Wassermann test on all expectant mothers.

8. That hospitals or institutions receiving referred cases from outlying districts be encouraged to separate maternal morbidity and mortality in those so-called "mussed-up" cases from those entering by regular routine.

9. That the Woman's Auxiliary of the State Association be approached and an attempt made to interest them in the activities of the Committee on Maternal Welfare.

10. That the Maternal Welfare Committee hold itself in constant readiness to provide state and Federal agencies with technical advice.

11. That the Committee cooperate in so far as feasible and advisable with the American Welfare Committee, Incorporated, in order to emphasize the significance of maternal mortality.

RALPH R. WILSON, Chairman,
JOS. D. JAMES,
BUFORD G. HAMILTON,
W. T. STACY,
E. LEE DORSETT.

DR. RALPH R. WILSON, Kansas City, Chairman: I feel it has been an honor to work with a group of such energetic and enthusiastic men as are on this Committee. We have had some most interesting experiences. I wish to take this opportunity to thank the staff at the Association headquarters for their assistance and the various members of the Council for their help. We have had unlimited assistance from the State Board of Health and our relationship with that body has been most cordial.

This Committee was formed last spring at Excelsior Springs and at that time there were three outstanding things facing us: First, the problem of maternal welfare in relation to the physician; second, the relation to the oncoming Social Security Act, and third, in view of recent lay publications on nursing and similar publications.

Our first year's work has been practically limited to the physician's position and his relationship to maternal welfare. In other words, we have been trying to clean our own house, inspect our own backyard, before indulging in other activities. But we are beginning to expand in the last few weeks.

I would like to stress a few things in this report. The first is the change in the birth certificate. You may ask: Why is that necessary? First, because there is a tendency to standardization of the birth certificates all over the United States. As it is, every state has a different type. Second, we have no way of knowing the type of delivery of any child from the present type certificate and the committee feels this is important if there is an etiological factor in the case. Third, unless the mother dies, or by chance the physician accidentally includes the type of delivery, we do not know how many cesarean sections are done over the state.

The next thing is relatively important, too. It is a

voluntary matter. By the courtesy of the State Board of Health we have been able to formulate a supplemental questionnaire in all cases of maternal death to be mailed back to the physician to be filled out in more detail with the idea of collecting statistics and to develop a better plan for recording them. This is purely voluntary and this questionnaire is the property of the Maternal Welfare Committee; it will not be the property of the State Board of Health. If you can see your way to do this it will be a great advantage.

Another point is that by the advice and consent of Dr. Goodwin we have been allowed a column in *THE JOURNAL*. The idea is to have this Committee receive questions from various practitioners on any point they wish to discuss; these questions will be referred to the proper member of our Committee and they will be answered through the column in *THE JOURNAL*. We can see a great advantage in having the medium of this column. We hope you flood us with questions and suggestions because it can be a great agency.

I hope you will read the report and if there are any questions we can elaborate we will be glad to do so at any time.

One important feature is the Maternal Welfare Dinner which will occur this evening and which we hope can be made an annual affair for discussion of maternal deaths. The only way we can improve our statistics on maternal death is talking about them among ourselves not in a spirit of criticism but in a spirit of rubbing shoulders with the other fellow. We have all had tragedies and if we can talk them over among ourselves I think we will go away with a better feeling and with a determination not to overlook possibilities in the future.

This evening Dr. Joseph L. Baer, Chicago, will be the critique of the cases reported, and in the same spirit in which this has been promulgated, the Committee on Maternal Welfare will report cases. Next year we hope there will be plenty of cases reported by other men and we also hope there will be a voluntary effort to have cases submitted and that the Committee will not have to do this. We will not, I assure you, unless there is some reason to undertake this procedure.

There is a minor point that might be of considerable value. I want you to look at recommendation 6 regarding the award of a prize to the person reading and having published in *THE JOURNAL* the best paper on the subject of obstetrics during the year, a nominal amount, \$5 or \$10. It could be announced at our dinner each year and we think it should be worth the competition for the place.

As I said before, we have limited ourselves to the activities in the profession. Since this report was made we have been involved in doing some work for the State Board of Health. As you know, the Social Security program has been rapidly taking form in the State of Missouri. The State Board of Health is supervising the maternal welfare program. The funds obtained from the Government by matching with our state funds will be paid out from the Department of Education. Under our Missouri laws that is necessary. However, the actual supervision is under the State Board of Health and they have appointed an advisory committee to assist in establishing their program. The program has been submitted and accepted by the Children's Bureau. A letter from Dr. Lunsford, and one from Dr. Gove, stated that they expected the funds soon and they have been anxious to cooperate. I can say that the work of the Maternal Division of the Social Security Act is limited to full-time obstetricians, full-time pediatricians, dental hygienists and nurses well trained in public health nursing. The

State Board of Health has been asking for multiple suggestions regarding the activities of obstetricians and has been most cooperative in every way.

On motion of C. T. Ryland, Lexington, duly seconded, this report was referred to the Committee on Medical Education and Public Welfare.

Dr. A. J. Kotkis, St. Louis, Chairman of the Committee on Physical Therapy, reported as follows:

REPORT OF THE COMMITTEE ON PHYSICAL THERAPY

The contemplated hospital survey recommended by various members of this Committee to determine the type and amount of physical therapy equipment now in use in each hospital throughout the state has been postponed due to lack of funds for postage and stationery. It was felt that this survey should be made in the near future in order to determine to what use physical measures are placed in these various hospitals and also to offer assistance in outlining a physical therapy service most practical for the hospital desiring this information.

The question of postgraduate education has been given much thought by various members of the Committee. Talks on various physical therapy subjects by special speakers are offered to county and district medical meetings, but to date, no calls have been received by the Committee. Last fall, in Kansas City, a three-day instructional session in physical therapy preceding the annual meeting of the Congress of Physical Therapy was recommended to the general practitioners of Missouri as an occasion where the latest information on the various phases of physical therapy could be obtained in a short space of time. This instruction was presented by a series of lectures without any clinical demonstrations and for which a charge of \$25 was made to each physician. Briefly speaking, this session was a failure and another plan has to be inaugurated. Therefore, a plan of a physical therapy seminar with clinical demonstrations has been suggested and will be put up to the Committee for deliberation. A three day session with a registration fee of \$5 to be held in St. Louis in the late fall or early winter is the tentative plan.

The problem of technicians developing and running their own private physical therapy departments without competent medical supervision promises to give this Committee much activity in the near future. The following complaint that was filed last week will emphasize the point:

A female technician, running her own establishment and occupying a suite of rooms in a building tenanted by a group of ethical practitioners, is soliciting or has hired a solicitor to contact by phone prospective patients already under the care of physicians. The motive is to coax the prospective patient to her department for physical therapy treatments of a special character claiming that she has medical supervision. This practice is evidently unethical and vicious and since it is used by a nonmedical and nonregistered technician, it becomes a problem of this Committee and will be presented to it for deliberation and action.

The Committee is a body to which any member of the State Association may turn for advice regarding the merits and practicability of various physical therapy equipment. To date, about twenty inquiries have been handled.

A. J. KOTKIS, Chairman.
C. H. NEILSON,
WM. J. STEWART,
F. H. EWERHARDT,
M. W. PICARD.

On motion, duly seconded, this report was referred to Reference Committee on Miscellaneous Affairs.

The report of the Committee on Study of Constitution and By-Laws, Dr. F. G. Mays, Washington, Chairman, follows:

REPORT OF COMMITTEE ON STUDY OF CONSTITUTION AND BY-LAWS

The special Committee on the Study of the Constitution and By-Laws of the Missouri State Medical Association met in Jefferson City, March 5, 1936.

The meeting was called to order by the Chairman, Dr. Frank G. Mays, Washington, and the roll called by Mr. E. H. Bartelsmeyer, Assistant Secretary of the Missouri State Medical Association. Those present were:

Drs. H. A. Lowe, Springfield; C. H. Neilson, Neil S. Moore, and V. V. Wood, St. Louis; Carl Ferris, Kansas City; Frank G. Mays, Washington; E. Lee Miller, Kansas City, and Mr. E. H. Bartelsmeyer, St. Louis.

Dr. Alphonse McMahon, St. Louis, and Dr. M. P. Overholser, Harrisonville, were not present, the latter because of illness. Dr. Miller appointed Dr. V. V. Wood a member of the committee to serve in the absence of Dr. Alphonse McMahon.

The purpose of the meeting and of the committee was explained by the chairman after which the individual members were asked for such revisions or changes to the present Constitution and By-Laws of the Missouri State Medical Association as seemed advisable to them. General discussion followed in which criticism was made of the present representation of our two large societies, namely, St. Louis Medical Society and Jackson County Medical Society, in relation to representation of the smaller outstate societies. Discussion revealed that the present set-up is as nearly representative as seemed possible to establish, it being pointed out by Dr. Miller that at present approximately one fourth of the delegates to the Annual Meeting of the State Association were from the two large cities of St. Louis and Kansas City. A general review of the Constitution and By-Laws revealed that the document is still adequate and flexible enough to meet the needs of organized medicine in the State of Missouri and conforms to that of approximately 90 per cent of the constitution and by-laws of the states which make up the American Medical Association. Representation at this time is one delegate and one alternate delegate for each fifty members or fraction thereof in a component society, and one councilor from each councilor district. This councilor representation was felt by the Committee to be inadequate in the two larger societies named. This resulted in the resolution to amend the By-Laws as follows:

Amendment No. 1. Amend By-Laws, Chapter III, Section 7, by adding "each Councilor District shall be entitled to one Councilor for every five hundred members or fraction thereof" so that when amended, the section shall read:

The House of Delegates shall divide the state into Councilor Districts specifying what counties each district shall include, and, when the best interest of the Association and the profession will be promoted thereby, organize in each a district medical society of which all members of the component county societies shall be members. Each Councilor District shall be entitled to one Councilor for every five hundred members or fraction thereof.

Motion by Dr. H. A. Lowe, seconded by Dr. Carl Ferris, carried.

An apparent inconsistency in the qualifications as stated for membership and for holding office of councilor was pointed out by Dr. Neilson, who made the following motion:

Amendment No. 2. Amend By-Laws, Chapter IV,

Section 1, by striking out the words "be a resident of" in line 14, and insert in lieu thereof "reside or practice in," so that when amended the section shall read:

The President on the first day of the Annual Session shall select a Committee on Nominations consisting of ten delegates, no two of whom shall be from the same Councilor District. The Committee on Nominations shall report the result of its deliberations to the House of Delegates in the form of a ticket containing the name of one member for each of the offices to be filled at that Annual Session excepting the President-Elect who shall be nominated from the floor of the House of Delegates. On the adoption of this section the nomination of the President for the succeeding year shall be made from the floor of the House. Each candidate for Councilor must reside or practice in the district for which he is nominated.

Motion seconded by Dr. V. V. Wood and carried by unanimous vote.

The present By-Laws require that the Treasurer be bonded in the amount of \$20,000. This is more than is needed most of the time and requires the additional expense of approximately 25 per cent or \$50 on the annual premium for the bond. It therefore seemed wise to amend this By-Law and permit the Council to determine the amount of bond so that when the full amount was not needed the Association need not have the expense of carrying it. Dr. H. A. Lowe therefore made the following motion, seconded by Dr. V. V. Wood:

Amendment No. 3. Amend By-Laws, Chapter V, Section 3, line 2, by striking out "of \$20,000" and insert in lieu thereof "which may from time to time be determined by the Council," so that when amended the section shall read:

The Treasurer shall give bond in the sum which may from time to time be determined by the Council. He shall demand and receive all funds due the Association, together with bequests and donations. He shall pay money out of the treasury only on a written order of the President, countersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands.

Motion carried unanimously.

Motion to adjourn by Dr. H. A. Lowe, seconded by Dr. Carl Ferris, carried.

FRANK G. MAYS, Chairman,
M. P. OVERHOLSER,
H. A. LOWE,
CARL R. FERRIS,
C. H. NEILSON,
NEIL S. MOORE,
ALPHONSE MCMAHON.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, this report was referred to the Reference Committee on Amendments to Constitution and By-Laws.

Dr. A. R. McComas, Surgeon, reported for the McAlester Foundation as follows:

REPORT OF McALESTER FOUNDATION

The McAlester Foundation, if you will recall, has several functions. Among these is the education of lay people. We had hoped for our other activities to receive some gifts of money but so far we have not done so; and as to the instruction of lay people, it seems that the President has a committee already appointed, or recommends a committee which would take this function practically out of the hands of the McAlester Foundation. When the Cancer Committee was appointed we stepped out of the way in order that they might stress cancer alone, and yet you will recall that this Committee has held some meetings in the education of the lay people several years back. The com-

mittee the President suggests on Health and Public Education will simply take all of the wind out of our Committee, and since we could not do some other things for lack of money we remain more or less silent in order that the subject of cancer might be stressed. Therefore, our activities have been very limited in the last two or three years. Maybe Dr. Nifong, a member of the committee, would have something to say.

DR. F. G. NIFONG, Columbia: May I supplement Dr. McComas' speech about the McAlester Foundation? It is pretty easy to forget our ideals and plans if they are carried along for several years without functioning. I want to compliment the President upon his vision about the education of the lay people. This was the ideal of Dr. McAlester and in order to do something to memorialize him this Foundation was formed on a rather broad plan. As many of you will recall, the Postgraduate Committee started by addressing the physicians and then supplemented their work by also addressing the laity. This is so timely and needs to be stressed so much that this program recommended by our President is particularly important. Anyone who attends the American College of Surgeons and sees the great meeting of lay people who come to hear prominent speakers on medical subjects realizes particularly what this means. Anyone who is connected with education in junior high schools or in the lower grades, or even in the universities, will realize how important it is that this matter should be stressed. This Foundation idealized, as it were, and planned a set-up; but without money like all other things in this time it cannot function except through the cooperation and help of our State Medical Association, and I may say that the majority of the members of this Committee are selected from this Association. But that is the way we have to function. In fact, we have nothing but a few dollars for stamp money.

In planning our program we must cooperate and concentrate in every way possible, but be careful to avoid duplication. The Cancer Committee and the other committees should be put under the McAlester Foundation and function through the State Medical Association primarily and actually. That is the thought we want to get over to the House of Delegates so that we may not forget what we have been doing and what our ideals are.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, this report was adopted.

REPORT OF DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION

DR. A. R. McCOMAS, Sturgeon: One of the objectives of the Delegates to the American Medical Association was to bring its meeting to Kansas City this spring. Every Delegate and every other member of this Association in attendance at the meeting last year exerted himself to that end, and we succeeded in bringing the American Medical Association to Kansas City.

On motion of Dr. W. H. Breuer, St. James, duly seconded, this report was adopted.

Appointment of Committee on Nominations

The President announced the appointment of the Committee on Nominations as follows:

W. L. Allee, Eldon, Chairman.
H. L. Mantz, Kansas City.
Alphonse McMahon, St. Louis.
F. G. Nifong, Columbia.
W. R. Jackson, Maryville.
A. J. Campbell, Sedalia.
A. P. E. Schulz, St. Charles.
L. B. Clinton, Carthage.

R. E. Breuer, Newburg.
J. W. Hardesty, Hannibal.

Dr. John S. Young, St. Louis, presented the following resolution which, upon motion of Dr. E. P. Heller, Kansas City, duly seconded, was referred to the Reference Committee on Resolutions:

WHEREAS, The incidence of industrial diseases is growing more and more serious especially with reference to chest conditions produced by the inhalation of dust; and

WHEREAS, There is no uniform law governing the operation of various industries in the various states; and

WHEREAS, Neither labor nor industry knows where it stands, therefore both are at a disadvantage; and

WHEREAS, There is no adequate uniform regulation to protect either the laborer or the industry; and

WHEREAS, Under the existing circumstances it is impossible for the small industry to carry insurance to protect its existence on account of high premiums; and

WHEREAS, Due to the lack of uniformity of laws large insurance companies are reluctant to take the risk of carrying any company who may have the least semblance of dust during its operation because there is no adequate law to force the employees to obey the rules of the company; and

WHEREAS, Most of the larger companies are engaged in interstate transactions and, therefore, difficult for each state to enforce the laws that already exist; and

WHEREAS, Certain companies often move from one state to another in order that they may have protection, or that they may dodge some adverse legislation that may be passed while they are operating in said state; and

WHEREAS, Due to the lack of uniformity of law concerning these health problems, many cities and states are losing incomes that they are justly entitled to by virtue of the fact that the company under consideration is located in said state or city where prohibitive legislation is bad; therefore be it

Resolved, That this, the St. Louis Medical Society, instruct its delegates to the Missouri State Medical Association to favor either Federal legislation on these points or some uniform compact between states so that there will be one basic law governing all these health propositions; and be it further

Resolved, That a copy of these resolutions be sent to each of our representatives in Washington; and be it further

Resolved, That they be requested, if possible, to suggest Federal legislation which will be governed through the department of public health which at the present time, under the existing various laws of the state, cannot be enforced.

Dr. Lee D. Cady, St. Louis, presented the following resolution which was referred to the Reference Committee on Resolutions:

WHEREAS, The present laws of the State of Missouri on medicine, surgery and midwifery, as contained in Chapter 53, Article 1, Missouri Revised Statutes, 1929, are inadequate and insufficient for the needs of the medical profession today; and

WHEREAS, It is of paramount importance to the people of the State of Missouri and the members of the medical profession practicing in the State of Missouri that a new Medical Practice Act be enacted with a view of giving reasonable safeguard to the public in general and to the members of the medical profession against illegal, unethical and unauthorized practices which serve to injure the public and to degrade the profession; therefore be it

Resolved, That the St. Louis Medical Society, upon its approval and in accordance with the by-laws and constitution of said Society, does instruct the delegates of the St. Louis Medical Society to present on behalf of the Society to the House of Delegates of the Missouri State Medical Association, in meeting assembled on April 13, 1936, a resolution to be adopted by said House of Delegates, authorizing the Committee on Public Policy to take immediate and necessary steps toward the enactment of a new code at the next session of the Missouri Legislature relating to the practice of medicine and surgery in the State of Missouri, that code to have as its principal feature the integration of the medical profession as a public corporation along the lines of the creation of integrated legal bars in different states of the Union and the integrated dental profession in the State of Oklahoma.

Dr. C. E. Burford, St. Louis, presented the following resolution which, upon motion duly seconded, was referred to the Reference Committee on Resolutions:

WHEREAS, It is common knowledge among medical practitioners that the public can and does medicate itself with certain sedative and soporific, and with certain febrifuge or analgesic drugs, and with at least one glandular preparation which is frequently detrimental to public health, and that there is no adequate public health guard against the indiscriminate sale of such drugs; therefore be it

Resolved, That the St. Louis Medical Society in accordance with the constitution and by-laws of said Society does instruct

its delegation to the Missouri State Medical Association in meeting assembled on April 13, 1936, to support a resolution for adequate state legislation to control the unrestricted sale of certain nonnarcotic sedative, soporific, or analgesic drugs, glandular substances and certain drugs known to be dangerous to the uninformed or careless public except by the order of a prescription of a duly licensed practitioner of the healing art who may be otherwise entitled to prescribe such medicines and drugs.

On motion the House of Delegates recessed until 4 o'clock.

Monday, April 13, 1936—Afternoon Session

The adjourned session of the House of Delegates convened at 4 o'clock, Monday, April 13, with the President, Dr. E. Lee Miller, presiding.

Dr. A. R. McComas, Surgeon, Chairman of the Council, reported as follows:

REPORT OF THE COUNCIL

The annual meeting of the Council was held in the Melbourne Hotel, St. Louis, November 19, 1935, 10 a. m.

The Executive Committee of the Council reported the selection of the dates April 13 to 15, 1936, for the Annual Session to be held at Columbia, which were approved.

The following members were elected to serve as the General Committee on Arrangements for the 1936 Annual Session: Dr. W. L. Allee, Eldon, Chairman; Dr. J. S. Summers, Jefferson City, and Dr. A. R. McComas, Surgeon. Dr. Dudley A. Robnett, Columbia, was appointed chairman of the Local Committee on Arrangements.

Upon recommendation of the President the following appointments were approved: Dr. T. S. Fleming, Moberly, as Councilor of the 10th District to fill the vacancy created by the death of Dr. C. H. Dixon, Moberly; Dr. C. E. Fallet, DeSoto, as Councilor of the 21st District to fill the vacancy created by the death of Dr. Norvel W. Jarvis, Festus; Dr. Curtis H. Lohr, St. Louis, as Councilor of the 20th District to fill the vacancy created by the resignation of Dr. C. H. Neilson, St. Louis; Dr. Alphonse McMahon and Dr. Neil S. Moore, St. Louis, as additional members of the Committee on Study of Constitution and By-Laws.

The Chairman appointed the following members as the Committee on Auditing and Appropriations: Dr. W. H. Breuer, St. James; Dr. W. M. West, Monett, and Dr. R. B. Denny, Creve Coeur.

The report of the Treasurer was referred to the Committee on Auditing and Appropriations.

The Secretary reported the activity of the State High School Debating League in debating the proposition: "Resolved, That the several states should enact legislation providing for a system of complete medical service available to all citizens at public expense." We were asked to provide a speaker on the negative side of this proposition at a meeting of debate coaches during the session of the Missouri State Teachers' Association in St. Louis, November 7. President Miller appointed Father Alphonse M. Schwitalla, S. J., Dean, St. Louis University School of Medicine, to represent us. Dean Schwitalla's remarks were discussed by Dr. Archer O'Reilly, St. Louis, and Dr. Carroll P. Hunsate, Kansas City.

The Secretary reported on the activity of Mr. Bartelsmeyer in the establishment of the Medical Information Bureau in the Headquarter's office.

The Assistant Secretary, Mr. Bartelsmeyer, reported on the survey relative to chronic illnesses being conducted by the United States Public Health Service, in St. Louis, Chillicothe, Clinton and Springfield.

The following resolution adopted by the Jackson County Medical Society, was adopted by the Council:

Resolved, That it is the opinion of the Executive Council of the Jackson County Medical Society that the legislature of the State of Missouri should, at its earliest convenience, so amend or revise the statutes of the State of Missouri that United States citizenship shall be a requisite for all applicants for licensure in medicine in the State of Missouri. Be it further

Resolved, That the Council of the Missouri State Medical Association be advised of the action of the Jackson County Medical Society and urged to take appropriate action in this matter.

Reports by the following committees of their activities to date were submitted: Publication, Defense, Postgraduate Work, Medical Education and Hospitals, Cancer, Medical Economics and Subsidiary Committee, Mental Health, Maternal Welfare and the Study of Constitution and By-Laws. Since all the activities reported by these committees are included in their respective annual reports submitted to the House of Delegates only the action of the Council as to approval of recommendations is reported.

The Committee on Cancer was authorized to inform each member of the Association by letter concerning the facilities offered to indigent patients at the Tumor Clinic, State Hospital No. 1, Fulton.

The following resolution presented by the Committee on Medical Economics was approved:

Resolved, That it is the consensus of opinion of the Medical Economics Committee of the State Association and its Subsidiary Committee, the Committee on County Medical Society Plans, in joint session, that the plan which is now in operation in St. Louis (patterned after the Washington, D. C., plan) be recommended for adoption to the Council and the State Association as a model plan to be followed in the establishment of similar bureaus in other cities and counties of Missouri. Be it further

Resolved, That a state organization be formed to be known as the Medical Economics Security Administration of the State of Missouri to be affiliated with the national organization when so formed.

The following resolution was adopted:

Resolved, That the Council of the Missouri State Medical Association requests the Council on Medical Education and Hospitals of the American Medical Association to rescind its action of September 15, 1935, as applied to two-year medical schools in Section b. The Council of the Missouri State Medical Association is well acquainted with the character of the work being done by the Medical School of the University of Missouri and feels that any move which will impair its usefulness will cause a distinct loss to medical education in Missouri.

The Council approved the Missouri State Medical Association getting behind the establishment of a four year course in medicine by the University of Missouri.

On recommendation of the Committee on Auditing and Appropriations the following Budget for 1936 was adopted:

Budget for 1936

Salaries	
Office	\$7,500.00
JOURNAL	4,600.00
JOURNAL	6,500.00
Legislation	1,000.00
Defense	1,000.00
Postage	400.00
Postgraduate Work	1,000.00
Printing and stationery.....	800.00
Traveling expense, Secretary and Assistant Secretary	1,100.00
Telephone and telegraph.....	800.00
Rent of office and light.....	1,400.00
Meetings (Annual Session, Council, Executive Committee)	3,000.00
General expense and miscellaneous.....	1,000.00
Total.....	\$30,100.00

The transfer of Barton County from the 16th to the 21st Councilor District was approved.

The delegates to the American Medical Association were instructed to nominate Dr. Herman D. Jerowitz of Jackson County Medical Society to Affiliate Fellowship in the American Medical Association.

Addresses were presented by the Rev. Alphonse M. Schwitala, S. J., Dean, St. Louis University School of Medicine; Dr. Walter L. Bierring, Des Moines, Past President of the American Medical Association, and Dr. J. Tate Mason, Portland, President-Elect of the American Medical Association.

After discussion by Drs. R. B. Denny, Creve Coeur; E. L. Spence, Kennett; E. P. Heller, Kansas City; W. H. Breuer, St. James, and A. R. McComas, Surgeon, the report as a whole (including that which is reported under "Meeting of the Council") was adopted with the exception of the last resolution which was amended and adopted as follows:

WHEREAS, It is now, and has been a canon of the American Medical Association, that local hospitals of counties and cities should be governed and controlled by the local medical society of such counties and cities, said canon being as follows, to-wit:

Resolved, That it is the opinion of the House of Delegates of the American Medical Association that physicians on the staffs of hospitals approved for intern training by the Council on Medical Education and Hospitals should be limited to members in good standing of their local county medical societies and that the House of Delegates request the Council on Medical Education and Hospitals to take this under advisement.

The Council has brought this resolution to the attention of all hospitals approved for intern training and it is planned to check staff memberships engaged in training interns. In this matter the Council will ascertain to what extent hospitals have complied with the foregoing resolution; and

WHEREAS, The Missouri State Medical Association and the various county medical societies are units of the American Medical Association, therefore, be it

Resolved, That the Missouri State Medical Association endorse the St. Louis County Medical Society for upholding the principles of the American Medical Association and believes a great injustice was done the St. Louis County Medical Society and the staff of the St. Louis County Hospital by the American Medical Association withdrawing its approval of the hospital for intern training, and recommends an early reinspection of the St. Louis County Hospital so it may be replaced on the approved list immediately.

Dr. Morris B. Simpson, Kansas City, read the report of the Reference Committee on Amendments to the Constitution and By-Laws.

REPORT OF THE REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

We recommend that Chapter III, Section 7, of the By-Laws be amended by adding the words "Each Councilor District shall be entitled to one Councilor for every 500 members or fraction thereof" so that when amended Section 7 shall read as follows:

Chapter III, Section 7. The House of Delegates shall divide the state into councilor districts specifying what counties each district shall include and when the best interests of the Association and the profession shall be promoted thereby organizing each the district medical society of which all members of the component county societies shall be members. Each Councilor District shall be entitled to one Councilor for every five hundred members or fraction thereof.

We recommend that Chapter IV, Section 1, of the By-Laws be amended by striking out the words "be a resident of" and inserting in lieu thereof "reside or practice in" so that when amended the section shall read:

Section 1. The President on the first day of the Annual Session shall select a Committee on Nominations consisting of ten delegates, no two of whom shall be from the same Councilor District. The Committee on Nominations shall report the result of its deliberations to the House of Delegates in the form of a ticket containing the name of one member for each of the

offices to be filled at the Annual Session excepting the President-Elect who shall be nominated from the floor of the House of Delegates. On the adoption of this section the nomination of the President for the succeeding year shall be made from the floor of the House. Each candidate for Councilor must reside or practice in the district for which he is nominated.

We recommend that Chapter VII, Section 1, of the By-Laws be amended to include a Committee on Maternal Welfare, a Committee on Mental Health, and a Committee on Health and Public Instruction to be known as the McAlester Foundation so that when amended Section 1 shall read:

Section 1. The standing Committees of this Association shall be as follows:

- A Committee on Scientific Work.
- A Committee on Public Policy.
- A Committee on Publication.
- A Committee on Medical Defense.
- A Committee on Medical Education and Hospitals.
- A Committee on Medical Economics.
- A Committee on Postgraduate Course.
- A Committee on Cancer.
- A Committee on Maternal Welfare.
- A Committee on Mental Health.
- A Committee on Health and Public Instruction (The McAlester Foundation).

Unless otherwise provided in these By-Laws, each of these committees shall consist of three members, each of whom shall serve for a term of three years. One member of each of these committees shall be appointed annually by the President, by and with the consent of the House of Delegates, provided that at the Seventieth Annual Session one member of each of the foregoing committees shall be appointed for a term of three years, one each for two years and one each for one year.

We recommend that a new section be added to Chapter VII of the By-Laws to be known as Section 10 to read as follows:

Chapter VII, Section 10. The Committee on Maternal Welfare shall consist of five members. One member shall be appointed by the President at the Seventy-ninth Annual Session and two members shall be appointed for the two succeeding Annual Sessions, by and with the consent of the House of Delegates, each appointment being for a term of three years. The duties of this Committee shall be to keep in touch with and investigate matters concerning maternal and child welfare. It shall carry on activities in the field of maternal and child welfare and in cooperation with our Committee on Postgraduate Work and the State Board of Health through its Division of Child Hygiene conduct postgraduate courses for the profession and disseminate information of an educational nature.

We recommend that a new section be added to Chapter VII of the By-Laws to be known as Section 11 to read as follows:

Section 11. The Committee on Mental Health shall consist of five members. The term of each member shall be for a period of three years. Two members shall be appointed by the President at the Seventy-ninth Annual Session and two members shall be appointed at the following Annual Session, and one member shall be appointed at the second succeeding Annual Session, by and with the consent of the House of Delegates. The duties of the Committee shall be to engage in the promotion of good mental health, the prevention of mental ill health and lend its support toward securing cooperation of all state or governmental agencies in obtaining better treatment of the mentally ill. It shall cooperate with the Committee on Mental

Health of the American Medical Association and with the Eleemosynary Board of the State of Missouri.

We recommend that a new section be added to Chapter VII of the By-Laws to be known as Section 12 to read as follows:

Section 12. The duties of the Committee on Health and Public Instruction (McAlester Foundation) shall be to keep in touch with, and investigate matters concerned with the public health and carry on such activities in the field of public health and the dissemination of information to lay groups in relation thereto as may be deemed appropriate; and shall cooperate with the Bureau of Health and Public Instruction of the American Medical Association and the State Board of Health of Missouri.

We recommend that Chapter III, Section 4, of the By-Laws be amended to include a Reference Committee on Medical Education and Public Welfare so that when amended Section 4, Chapter III, will read as follows:

Chapter III, Section 4. From among members of the House of Delegates the President shall appoint Reference Committees to which reports and resolutions shall be referred as follows:

Reference Committee on Amendments to the Constitution and By-Laws.

Reference Committee on Medical Education and Public Welfare.

Reference Committee on Resolutions.

Reference Committee on Miscellaneous Affairs.

He shall also appoint a Committee on Credentials and such other committees as may be considered by him to be necessary.

We recommend that a new section be added to Chapter XI of the By-Laws to be known as Section 11 to read as follows:

Section 11. The State Association or a county society in manner approved by the State Association, may undertake and coordinate all sickness, care of indigents and low income groups, through agreements with public officials, and with physicians and others, and by the use of contributions, cooperative funds and other means, provided only that free choice of physician within such agreements shall be retained and that responsibility of physician to patient and all other agreements and tort relationships with patient shall remain as though the dealings were direct between physician and patient.

This Committee does not recommend amending Chapter V, Section 3 of the By-Laws by striking out the words "of \$20,000 dollars" and inserting in lieu thereof "which may from time to time be determined by the Council" so that when amended Section 3 would read:

Section 3. The Treasurer shall give bond in the sum which may from time to time be determined by the Council. He shall demand and receive all funds due to the Association, together with bequests and donations. He shall pay money out of the treasury only on a written order of the President, countersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands.

MORRIS B. SIMPSON,
A. P. E. SCHULZ,
H. C. BRASHEAR.

Dr. A. H. Marshall, Charleston, read the report of the Reference Committee on Resolutions.

REPORT OF THE REFERENCE COMMITTEE ON RESOLUTIONS

The Committee has read the resolutions submitted in the meeting of the House of Delegates this morning and makes the following recommendations:

The resolution in regard to supervision of the sale of harmful drugs we recommend be adopted.

We recommend that the resolution pertaining to the Integration Law be referred to the Committee on Public Policy and that the President be requested to appoint a subsidiary committee to make a special study with the hope that the results may be presented at the next meeting of the State Legislature.

We recommend that the resolution regarding silicosis and other dust diseases be referred to the Committee on Public Policy and that the House of Delegates recommend that this be approved and referred to the House of Delegates of the American Medical Association.

We, the Committee, consider these resolutions important and worthy of careful consideration by the committees to whom they have been referred.

On motion of Dr. Lee D. Cady, St. Louis, duly seconded, this report was adopted.

Dr. Frank G. Mays, Washington, read the report of the Reference Committee on Miscellaneous Affairs.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS AFFAIRS

The Committee had two questions before it. The report of the Committee on Medical Education and Hospitals was approved.

The report of the Committee on Physical Therapy was approved with the comment that the case cited of the registered technician soliciting business was a direct violation of the Medical Practice Act, Revised Statutes (1929) Section 9118, and subject to prosecution by civil authorities.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, the report was adopted.

Dr. Rexford L. Diveley, Kansas City, read the report of the Committee on Medical Education and Public Welfare.

REPORT OF COMMITTEE ON MEDICAL EDUCATION AND PUBLIC WELFARE

Referred to this committee for consideration was the report of the Committee on Cancer. We recommend the adoption of the original report with the exception of recommendation 3 which would provide that the postgraduate instruction be given at the University of Missouri School of Medicine. We recommend that instead of holding the course of instruction in any one locality this course be held in the various Councilor Districts, thus taking the education to the physicians and lay audiences rather than trying to obtain the cooperation of the lay organizations and the local professions to come to one spot for their education.

We recommend the adoption of the report of the Committee on Mental Health and recommend that the House of Delegates endorse a State Society on Mental Hygiene. The Society for Mental Hygiene is primarily an organization to promote and direct education in matters of mental health and the prevention of insanity, etc. Matters have reached a stage where the Missouri Mental Hygiene Society as a state wide organization is assured. It is the feeling that it is necessary. The medical profession will direct the activities of this organization and hold the principal offices. They ask for the endorsement of this Association.

We recommend the adoption of the report of the Committee on Maternal Welfare and recommend that this Committee be made a standing committee.

On motion of Dr. A. H. Marshall, Charleston, duly seconded, this report was adopted.

DR. B. W. HAYS, Jackson: For a great many years this Association has been going up and down the state,

to St. Joseph, Hannibal, Columbia, Jefferson City, Sedalia, Springfield, but never in the history of the Association to my recollection has it gone down to Southeastern Missouri. We have been instructed by the Cape Girardeau County Medical Society to invite this Association to come to Cape Girardeau for the 1937 Session. The Chamber of Commerce is sponsoring the raising of a fund, in addition to what the local medical profession is planning, to entertain you doctors, if you will come, and also the Woman's Auxiliary.

Cape Girardeau, as you know, is one of the oldest cities in the state and Ste. Genevieve was founded in 1835. St. Louis is much younger than Ste. Genevieve. There is a lot of history in Southeastern Missouri and we want you to get acquainted with the medical profession down there. Many of them have been rather lethargic about attending the Annual Sessions, capable men, well trained men in their fields, and I believe if this Association should go to Cape Girardeau they would manifest a new interest in attending the meetings at other points.

We have good highways leading into Cape Girardeau and we have the Frisco Railroad out of St. Louis. Cape Girardeau is a city of about 18,000. We have a bridge across the river there, we have golf courses and we have great fishing places along the Missouri River.

Gentlemen, we cordially invite you to come to Cape Girardeau in 1937.

On motion of Dr. A. H. Marshall, Charleston, duly seconded, Cape Girardeau was unanimously chosen for the meeting place in 1937.

On motion the House of Delegates adjourned until Wednesday afternoon.

Wednesday, April 15, 1936—Afternoon Session

The House of Delegates convened at 4 p. m., Wednesday, May 15, with the President, Dr. E. Lee Miller, Kansas City, in the Chair.

On motion of Dr. C. E. Burford, St. Louis, seconded by Dr. E. P. Heller, Kansas City, the reading of the minutes was dispensed with.

ELECTION OF OFFICERS

Nomination for President-Elect

Dr. F. G. Nifong, Columbia, nominated Dr. Dudley S. Conley, Columbia, for President-Elect. The nomination was seconded by several delegates.

On motion the nominations were closed and the Secretary was instructed to cast the ballot of the House for the election of Dr. Conley as President-Elect for 1936-1937.

THE SECRETARY: It gives me great pleasure to cast the ballot for the election of Dr. Conley for President-Elect of the Association.

Dr. W. L. Allee, Eldon, Chairman of the Committee on Nominations, submitted the following report:

Report of the Committee on Nominations

For delegates to the American Medical Association: Delegate, Dr. W. H. Breuer, St. James; alternate, Dr. E. H. Skinner, Kansas City. Delegate, Dr. A. R. McComas, Sturgeon; alternate, Dr. H. L. Kerr, Crane. Delegate, Dr. W. M. West, Monett; alternate, Dr. B. W. Hays, Jackson. Delegate to fill the unexpired term of the late Dr. Emmett P. North, St. Louis, Dr. Carl F. Vohs, St. Louis.

For Vice Presidents: Dr. A. H. Marshall, Charleston; Dr. James E. Stowers, Kansas City; Dr. E. Y. Pare, Leeton.

For Councilors:

1st District.....O. C. Gebhart, Orgeon

3rd District.....J. A. Crockett, Stanberry.

4th District.....Arthur Bristow, Princeton
5th District.....J. R. Bridges, Kahoka
7th District.....Walter D. Pipkin, Monroe City
9th District.....A. R. McComas, Sturgeon
11th District.....J. H. Timberman, Chillicothe
13th District.....E. P. Heller, Kansas City
15th District.....L. J. Schofield, Warrensburg
17th District.....Guy Titsworth, Sedalia
19th District.....J. S. Summers, Jefferson City
21st District.....C. E. Fallet, DeSoto
23rd District.....J. B. Luten, Caruthersville
25th District.....P. S. Tate, Farmington
27th District.....J. C. B. Davis, Willow Springs
29th District.....R. M. James, Joplin
31st District.....H. A. Lowe, Springfield

On motion of Dr. W. L. Allee, Eldon, seconded by Dr. W. T. Elam, St. Joseph, the officers mentioned in the report of the Committee on Nominations were declared elected.

THE PRESIDENT: Dr. Conley, this Association has honored itself by having elected you as President-Elect and we appreciate your having accepted the position.

DR. D. S. CONLEY, Columbia: I should indeed be callous if I did not feel deeply on this occasion. This is the greatest thing that could happen to me, or to any other member of the Missouri State Medical Association. I do not take this as a personal tribute but I think you have paid an honor to the institution which I represent and which will be equally appreciative. This is the fifth time you have so honored the institution. There was first Dr. McAlester, then Dr. Woodson, Dr. McComas and Dr. Nifong. I am the fifth one from the teaching profession and I hope when the history is written that I may stand shoulder to shoulder in your memory with the four illustrious ones who have preceded me.

Installation of Dr. Woolsey

PRESIDENT MILLER: Dr. Woolsey, I have the honor to ask you to accept as my successor the gavel which has been wielded over this Association since 1898. I know you will fill the position and do honor to the gavel and I am happy to be succeeded by such a man as you.

DR. ROSS A. WOOLSEY, St. Louis: I feel this honor most deeply.

Dr. Ross A. Woolsey, St. Louis, made the following appointments to standing committees:

E. J. Goodwin, St. Louis, Committee on Scientific Work.

C. H. Neilson, St. Louis, Committee on Postgraduate Work.

J. F. Harrison, Mexico, Committee on Public Policy; Dr. W. L. Allee, Chairman, Committee on Public Policy.

Charles E. Hyndman, St. Louis, Committee on Defense.

L. W. Dean, St. Louis, Committee on Medical Education and Hospitals.

Earl C. Padgett, Kansas City, Committee on Cancer.

Morris B. Simpson, Kansas City, Committee on Medical Economics; Dr. Carl F. Vohs, St. Louis, Chairman, Committee on Medical Economics.

G. A. Johns, St. Louis, Committee on Mental Health.

J. D. James, Springfield, Committee on Maternal Welfare.

M. W. Pickard, Kansas City, Committee on Physical Therapy.

On motion of Dr. W. H. Breuer, St. James, seconded by Dr. Lee D. Cady, St. Louis, these appointments were confirmed.

AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

The recommendations of the Reference Committee on Amendments to the Constitution and By-Laws (page 293) were on motion, duly seconded, adopted seriatim and as a whole as follows:

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, the amendment to Chapter III, Section 7, failed of passage.

On motion of Dr. W. T. Elam, St. Joseph, seconded by Dr. R. B. Denny, Creve Coeur, the amendment to Chapter IV, Section 1, was adopted.

On motion of Dr. W. T. Elam, St. Joseph, seconded by Dr. C. T. Ryland, Lexington, the amendment to Chapter VII, Section 1, was adopted.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, the amendment to Chapter VII, adding Section 10, was adopted.

On motion of Dr. W. H. Breuer, St. James, duly seconded, the amendment to Chapter VII, adding Section 11, was adopted.

On motion of Dr. H. C. Brashear, Mexico, seconded by Dr. F. G. Nifong, Columbia, the amendment to Chapter VII, adding Section 12, was adopted.

On motion of Dr. H. C. Brashear, Mexico, duly seconded, the amendment to Chapter III, Section 4, was adopted.

On motion of Dr. H. C. Brashear, Mexico, seconded by Dr. W. T. Elam, St. Joseph, the amendment to Chapter XI, adding Section 11, was adopted.

On motion of Dr. H. C. Brashear, Mexico, and after discussion by Drs. F. G. Mays, Washington, Dr. F. G. Nifong, Columbia, Dr. E. Lee Miller, Kansas City, Dr. Morris B. Simpson, Kansas City, Dr. R. B. Denny, Creve Coeur, and Dr. A. R. McComas, Sturgeon, the amendment to Chapter V, Section 3, failed of passage.

On motion of Dr. H. C. Brashear, Mexico, duly seconded, the report was adopted as a whole.

Upon unanimous consent of the House Dr. A. P. E. Schulz, St. Charles, presented the following resolution:

Resolved, That our grief caused by the recent death of our fellow Delegate, past President, and Delegate to the American Medical Association, Dr. Emmett P. North, be hereby recorded.

The resolution was unanimously approved.

On motion the House of Delegates adjourned *sine die*.

MEETING OF THE COUNCIL

Colonial Room, Hotel Tiger

Monday, April 13, 1936—First Session

The first meeting of the Council convened at a luncheon meeting at noon, Monday, April 13, 1936, the Chairman, Dr. A. R. McComas, Sturgeon, presiding. Roll call showed the following Councilors present:

1st District..... O. C. Gebhart, Oregon
2nd District..... W. T. Elam, St. Joseph
4th District..... J. B. Wright, Trenton
5th District..... J. R. Bridges, Kahoka
6th District..... J. S. Gashwiler, Novinger
8th District..... B. Kurt Stumberg, St. Charles
9th District..... A. R. McComas, Sturgeon
11th District..... J. H. Timberman, Chillicothe
12th District..... Spence Redman, Platte City
13th District..... E. P. Heller, Kansas City
14th District..... C. T. Ryland, Lexington
15th District..... L. J. Schofield, Warrensburg
16th District..... C. W. Luter, Butler
17th District..... Guy Titsworth, Sedalia

18th District..... W. L. Allee, Eldon
19th District..... J. S. Summers, Jefferson City
20th District..... Curtis H. Lohr, St. Louis
21st District..... C. E. Fallet, DeSoto
22nd District..... B. W. Hays, Jackson
24th District..... T. W. Cotton, Van Buren
25th District..... P. S. Tate, Farmington
26th District..... W. H. Breuer, St. James
27th District..... J. C. B. Davis, Willow Springs
28th District..... W. M. West, Monett
29th District..... R. M. James, Joplin
30th District..... R. B. Denny, Creve Coeur
31st District..... H. A. Lowe, Springfield

Dr. A. R. McComas, Sturgeon, read the minutes of the previous meeting which on motion, duly seconded, were accepted and made part of the report of the Council to the House of Delegates.

On motion, duly seconded, the Message of the President was approved and that portion which referred to amendments to the Constitution and By-Laws was referred to the Reference Committee on Amendments to Constitution and By-Laws.

On motion, duly seconded, the report of the Secretary was adopted.

Dr. A. R. McComas, Sturgeon, Chairman, appointed the Auditing Committee as follows: Dr. E. P. Heller, Kansas City; Dr. W. T. Elam, St. Joseph, and Dr. T. W. Cotton, Van Buren.

On motion the Report of the Committee on Post-graduate Work was adopted.

On motion the Report of the Committee on Publication was adopted.

On motion the Report of the Committee on Public Policy was adopted.

On motion the Report of the Committee on Defense was adopted.

On motion the Report of the Committee on Medical Economics was adopted and paragraphs 2, 3, 4 and 5 were referred to the Committee on Public Policy.

On motion the Report of the Committee on Mental Health was adopted with the exception of that portion which dealt with the Mental Hygiene Society which was referred back to the Committee on Mental Health for further study and recommendation to the Council.

A resolution requesting a reinspection of the St. Louis County Hospital by the Council on Medical Education and Hospitals of the American Medical Association was adopted.

The hyphenation of Barry County Medical Society with the Lawrence-Stone County Medical Society was approved.

The hyphenation of Knox County Medical Society and Sullivan County Medical Society with the Adair-Schuyler County Medical Society was approved.

Both hyphenations were made for scientific and social purposes only and each county to retain its individual rights and delegates.

The transfers of the following county societies was approved:

Lewis County Medical Society from the 6th District to the 5th District.

Sullivan County Medical Society from the 4th District to the 6th District.

Warren County Medical Society from the 9th District to the 8th District.

Cooper County Medical Society from the 14th District to the 9th District.

The application for membership of Dr. Solomon Meluney in the Buchanan County Medical Society was disapproved.

On motion the Council adjourned.

Wednesday, April 15, 1936—Second Meeting

The second meeting of the Council convened April 15 following the final meeting of the House of Delegates, the Chairman, Dr. A. R. McComas, Sturgeon, presiding.

The Auditing Committee reported that they found the books of the Association correct and well kept.

The election of officers for 1936-1937 resulted in the following:

Chairman of the Council, Dr. A. R. McComas, Sturgeon.

Vice Chairman of the Council, Dr. W. H. Breuer, St. James.

Secretary of the Council, Dr. E. J. Goodwin, St. Louis.

Treasurer, Dr. John R. Caulk, St. Louis.

Secretary-Editor of the Association, Dr. E. J. Goodwin, St. Louis.

Assistant Secretary and Business Manager, Mr. E. H. Bartelsmeyer, St. Louis.

Executive Committee, Dr. A. R. McComas, Sturgeon; Dr. W. L. Allee, Eldon, and Dr. W. H. Breuer, St. James.

On motion the Council adjourned *sine die*.

MINUTES OF THE GENERAL MEETING

Ballroom, Hotel Tiger, Columbia

Monday, April 13, 1936—Afternoon Session

The scientific sessions were held in the Ballroom of the Hotel Tiger, the first convening at 1 o'clock Monday afternoon, April 13, with Dr. John D. Hayward, Clayton, Vice President, in the chair. Members-presented addresses as follow:

Dr. Sam E. Roberts, Kansas City, "Impaired Hearing: Classification and Management." Discussion by Drs. Claude Bruner, Columbia, and E. L. Spence, Kennett.

Dr. C. Souter Smith, Springfield, "Management of Squint."

Dr. Wm. M. James, St. Louis, "Diagnosis and Treatment of Ocular Complications in Syphilis." Discussion by Drs. John McLeod, Kansas City; Avery A. Drake, Rolla, and Maurice E. Cooper, Columbia.

Dr. W. Byron Black, Kansas City, "Rational Treatment of Chronic Sinus Diseases."

Dr. Jacob Kulowski, St. Joseph, "Complications of Pyogenic Osteomyelitis and Their Treatment."

Dr. John R. Green, Independence, "Etiology of Mesenteric Thrombosis." Discussion by Dr. Emsley T. Johnson, Kansas City.

Tuesday, April 14, 1936—Morning Session

An Address of Welcome was delivered by Frederick A. Middlebush, Columbia, President of the University of Missouri.

Dr. E. Lee Miller, Kansas City, Address of the President, "The Role of Medicine in the Progress of Mankind."

Dr. Ross A. Woolsey, St. Louis, Address of the President-Elect, "Our Coming Year."

Dr. Joseph L. Baer, Chicago, "Operative Obstetrics."

Dr. E. Lee Dorsett, St. Louis, "Prolapse of the Uterus: Operative Treatment With Special Reference to the Manchester Operation."

Dr. Bransford Lewis, St. Louis, "The Loose Kidney Problem and the General Practitioner."

Dr. E. E. Sexton, St. Louis, "Problems of the Female Urethra."

Dr. J. G. Probststein, St. Louis, "Serious Complications and Sequelae Resulting From the Injection Ther-

apy of Varicose Veins." Discussion by Dr. Orville O. White, St. Louis.

Tuesday, April 14, 1936—Afternoon Session

Dr. L. S. Luton, St. Louis, "The Clinical Use of Digitalis: Its Variables." Discussion by Drs. C. W. Greene, Columbia, and D. P. Barr, St. Louis.

Dr. D. P. Barr, St. Louis, "Nature and Treatment of Obesity." Discussion by Drs. C. W. Greene, Columbia, and Maurice E. Cooper, Columbia.

Dr. Willard Bartlett, Jr., St. Louis, "A Ten Year Mortality Study in Toxic Goiter."

Dr. H. P. Boughnou, Kansas City, "Pernicious Anemia."

Dr. E. P. Heller, Kansas City, "Management of Injuries to the Spine and Pelvis."

Dr. C. E. Bell, Kansas City, "Tumors of Superior Mediastinum: Clinical Aspects; Roentgen Aspects; Pathologic Aspects." Discussion by Drs. Ira H. Lockwood, Kansas City; F. C. Narr, Kansas City; M. Pinson Neal, Columbia, and M. F. Arbuckle, St. Louis.

Dr. J. H. Hershey, St. Louis, "The Production of Prolonged Stimulation of a Sympathetic Nerve Trunk: After the Method of Burrows." Discussion by Dr. Wm. T. Coughlin, St. Louis.

Dr. Carl R. Ferris, Kansas City, "Modern Trend of the Treatment of Staphylococcus Infection."

Tuesday, April 14, 1936—Evening Session

Dr. Austin A. Hayden, Chicago, "Headquarters of the American Medical Association." Motion Picture.

Wednesday, April 15, 1936—Morning Session

Dr. H. A. Lowe, Springfield, "Pneumococcic Peritonitis."

Dr. W. M. Kinney, Joplin, "Pathology of Silicosis and Silicotuberculosis."

Dr. M. Pinson Neal, Columbia, "Cancer Viewed as a Preventable Disease."

Dr. Ferdinand C. Helwig, Kansas City, "Determination of Type of Treatment for Cancer From Pathologic Studies."

Dr. Wm. E. Leighton, St. Louis, "Trauma as an Etiologic Factor in Carcinoma."

Dr. Robert E. Schluter, St. Louis, "Diagnosis and Treatment of Carcinoma of the Breast."

Dr. Ellis Fischel, St. Louis, "Cancer of the Rectum."

Dr. M. F. Arbuckle, St. Louis, "Cancer of the Larynx."

Discussion of the presentations on "Cancer" by Drs. M. D. Overholser, Columbia; J. H. Timberman, Chillicothe, and F. G. Nifong, Columbia.

Wednesday, April 15, 1936—Afternoon Session

Dr. H. I. Spector, St. Louis, "When Therapeutic Pneumothorax for Tuberculosis Should Be Instituted and When It Should Be Discontinued." Discussion by Dr. Carl R. Ferris, Kansas City.

Dr. R. J. Crossen, St. Louis, "Endocrine Treatment in Gynecology." Discussion by Dr. Willard Bartlett, Jr., St. Louis.

Dr. J. W. Larimore, St. Louis, "The Ileocecal Segment."

Dr. Louis Rassieur, St. Louis, "Common Duct Gall Stones." Discussion by Dr. Wm. T. Coughlin, St. Louis.

COMMITTEE ON MATERNAL WELFARE DINNER MEETING

Monday, April 13, 1936—Hotel Tiger

The Committee on Maternal Welfare held a dinner meeting in the Colonial Room, Hotel Tiger, April 13,

the Chairman of the Committee, Dr. Ralph R. Wilson, Kansas City, presiding.

Dr. H. S. Gove, Jefferson City, Director of Child Hygiene of the State Board of Health, presented a short address.

Reports on maternal deaths during 1935 were made by the following members of the Committee: Drs. Buford G. Hamilton, Kansas City; E. Lee Dorsett, St. Louis; Winton T. Stacy, St. Joseph; Joseph D. James, Springfield, and Ralph R. Wilson, Kansas City.

Dr. Joseph L. Baer, Chicago, acted as critique and opened the discussion, followed by Drs. A. H. Thornburgh, West Plains; C. W. Luter, Butler, and J. D. Thurmon, St. Louis.

The meeting adjourned with the expressed hope that the Maternal Welfare Dinner may become an event of each Annual Session.

ANNUAL MEETING OF THE MISSOURI SOCIETY OF MEDICAL SECRETARIES

Tuesday, April 14, 1936—Hotel Tiger

The Society of Medical Secretaries held its annual meeting Tuesday evening, April 14, in the Colonial Room of the Hotel Tiger, Dr. F. G. Mays, Washington, presiding.

The guest speaker was Dr. Austin A. Hayden, Chicago, Secretary of the Board of Trustees of the American Medical Association, who spoke on the activities of the American Medical Association and some of his experiences in connection therewith.

Dr. E. Lee Miller, Kansas City, President of the Missouri State Medical Association, presented a short address.

The election of officers resulted in the following: President, Dr. F. G. Mays, Washington, reelected; Secretary, Dr. D. M. Dowell, Chillicothe; Vice President, Dr. E. C. Robichaux, Excelsior Springs.

The Secretaries' conference adjourned.

REGISTRATION AT SEVENTY-NINTH ANNUAL SESSION

Adams, C. F., Jefferson City
Alford, Leland B., St. Louis
Allee, Gail D., Lamar
Allee, James W., Eldon
Allee, Warren L., Eldon
Allen, C. H., Independence
*Allen, William, Chicago
Altheide, J. Paul, St. Louis
*Ambrose, Edward P., Jr., Columbia
Andersen, E. J. T., Montgomery City
*Appel, O. W., St. Louis
Arbuckle, M. F., St. Louis
*Arnoldi, Louis B., Columbia
*Baer, Joseph L., Chicago
Bagby, J. W., St. Louis
Bailey, Fred, St. Louis
*Bales, Earl, Kansas City
Bansbach, Joseph J., St. Joseph
Barden, F. W., Centralia
*Barks, Orville L., Columbia
Barnett, Gordon P., Kansas City
Barr, David, St. Louis
Bartlemeyer, E. H., St. Louis
Bartlett, Willard, Jr., St. Louis
Baskett, E. D., Columbia
*Bauman, Carl S., St. Louis
Becke, William G., St. Louis
Beil, Wallace C., Kansas City
Belden, Edgar A., Marshall
Belden, W. E., Columbia

*Bell, Charles E., Kansas City
*Bertram, Harold F., Columbia
*Beyreuther, P. F., St. Louis
Bills, Martin L., Kansas City
Black, W. Byron, Kansas City
Bohne, William R., St. Louis
*Boots, Roger H., Columbia
Boughnou, Harvey P., Kansas City
Bourke, T. S., Kansas City
Braecklein, W. A., Higginsville
Brashear, Howard C., Mexico
*Breckenkamp, A. W., St. Louis
Braid, Jacob, Spickard
Breuer, Robert E., Newburg
Breuer, William H., St. James
Bridges, James R., Kahoka
Brown, Irwin S., Kansas City
Brown, John E., Perry
Brown, J. J., Fulton
Bruner, Claude R., Columbia
Brunner, Ethan E., Carrollton
*Buck, Ronald M., Columbia
Buckingham, W. W., Kansas City
Burford, Cyrus E., St. Louis
Butler, Fred E., Salem
*Cabeen, R. J., Leon, Kansas
Cady, Lee D., St. Louis
*Caldemeyer, E., Columbia
*Calvin, Bailey, Columbia
*Camp, Harold M., Monmouth, Ill.

Campbell, Albert J., Sedalia
Capell, Clarence S., Kansas City
*Capels, J. T., Kansas City
Cardwell, Clarence, Stella
Carle, H. W., St. Joseph
Carroll, George A., St. Louis
Castles, J. E., Kansas City
Caulk, John R., St. Louis
Chamberlain, G. L., New Franklin
*Childs, David W., Columbia
Chilton, J. C., Hannibal
*Cleary, Leo A., St. Joseph
Clinton, Lloyd B., Carthage
Cochran, O. W., Boonville
Cole, Paul F., Springfield
Compton, J. Roy, St. Louis
Conley, Dudley S., Columbia
Cook, Jerome E., St. Louis
Coombs, M. O., Joplin
Cooper, Maurice E., Columbia
Cooper, R. Lee, Warrensburg
Cotton, Tolman W., Van Buren
Coughlin, W. T., St. Louis
Cowan, R. D., Aurora
Craig, Owen W. D., St. Joseph
Crews, R. N., Fulton
Crider, A. J., Dixon
*Crossen, H. E., Kansas City
Crossen, R. J., St. Louis
*Croswhite, J. H., Columbia
*Crowell, B. C., Chicago
Crowson, Egbert, Parnell
Custer, Matthew L., St. Louis
*Danner, E. H., Springfield, Ill.
Dauksys, Joseph, Excelsior Springs
Davis, C. B., St. Joseph
Davis, Charles B., Walker
Davis, J. C. B., Willow Springs
*Davis, Kieffer D., Columbia
Davis, Paul C., Moberly
Dawson, J. W., Eldorado Springs
Denny, Robert B., St. Louis
DeTar, B. E., Joplin
*DeVilbiss, B. C., New York
Dickson, F. D., Kansas City
Diehr, M. A., St. Louis
Dietrich, Karl D., Columbia
Diveley, Rexford L., Kansas City
*Dixon, Charles H., Columbia
*Dollarhide, G. F., Peoria, Ill.
Dorsett, E. Lee, St. Louis
*Douglas, Paul L., Columbia
Dowell, Donald M., Chillicothe
Drake, Avery A., Rolla
Dumbauld, Bunn A., Webb City
Durst, Henry, Fulton
Dyer, C. P., Webster Groves
Dysart, W. P., Columbia
Elam, William T., St. Joseph
*Empson, R. G., Valmeyer, Ill.
Engel, Lawrence P., Kansas City
Enloe, Cortez F., Jefferson City
Ernst, Edwin C., St. Louis
Evans, J. Lane, Brookfield
Fallet, C. E., DeSoto
Farthing, Fred R., Springfield
Farthing, Robert R., Ozark
*Ferguson, J. T., Columbia
Ferrell, W. R., Belle Ferris, Carl R., Kansas City
Fessenden, E. M., Springfield
Fineberg, Maxwell, St. Louis
Finley, Freeman L., Overland
Fischel, Ellis, St. Louis
*Fisher, Joseph L., Columbia
*Fleming, Jacob W., Jr., Columbia
Fleming, Tom, Moberly
*Fletcher, Paul F., St. Louis
Flynt, Joseph F., Paris

*Francisco, C. B., Kansas City, Kansas
Freeman, Spencer L., Kirksville
Frischer, Julius, Kansas City
Furlow, Leonard T., St. Louis
*Gabby, S. L., Elgin, Ill.
Gallagher, John F., St. Louis
Gallagher, Wm. J., St. Louis
Gashwiler, J. Schooling, Novinger
Gay, Lee P., St. Louis
Gebhart, Oliver C., Oregon
Gempel, Paul A., Kansas City
Gentry, R. C., Sweet Springs
Gibson, Edward T., Kansas City
*Gilbert, W. R., St. Louis
Gilkey, Harry, Kansas City
Gilles, Clifford L., Kansas City
Gillbam, Frank W., Jefferson City
Gist, William W., Kansas City
Glassberg, B. Y., St. Louis
Glasscock, Ernest L., Kansas City
Glaze, K. F., St. Louis
Goldberg, Isadore E., Polo
Goodrich, Howard B., Hannibal
Goodson, Wm. H., Liberty
Goodwin, E. J., St. Louis
Gore, Abner E., Sweet Springs
*Gorelick, David F., Columbia
Gorham, Frank D., St. Louis
Gove, Herman S., Jefferson City
Green, John R., Independence
Greene, C. W., Columbia
Griffin, Fred, Mexico
Grim, George E., Kirksville
*Gulick, A., Columbia
Gunn, A. J., Versailles
Haley, R. R., Brookfield
*Hall, Carl W., Columbia
Hall, Oscar B., Warrensburg
Hall, Robt. G., Fulton
Hallberg, John W., Kansas City
Hamilton, Buford G., Kansas City
*Hamilton, Eugene H., Columbia
*Hamilton, Fred, Peoria, Ill.
*Hamilton, M. C., St. Louis
Hampton, Oscar P., Jr., University City
Haning, H. P., Warrensburg
Hanks, Ralf, Fulton
Hanna, M. A., Kansas City
Hansel, French K., St. Louis
Hardesty, J. W., Hannibal
Hardy, John W., Sumner
Harlan, D. L., Clarence
Harms, F. L., Salisbury
Harrison, J. Frank, Mexico
Hartnett, Leo J., St. Louis
Hartwell, Basil O., Drexel
Harwell, J. Lee, Poplar Bluff
Harwell, J. Lester, Poplar Bluff
Hawkins, George W., Salisbury
Hawkins, N. William, Bonne Terre
Hawkins, Wesley R., Glasgow
*Hayden, Austin A., Chicago
Haynes, Robert C., Marshall
Hays, Bernard W., Jackson
Hayward, John D., St. Louis
Heller, Edward P., Kansas City
Helwig, F. C., Kansas City
Henske, Andrew C., St. Louis
Herington, Warner, Green City
*Herrod, James, Kansas City
Hershey, J. H., St. Louis
Hetherlin, T. Guy, Louisiana
*Hill, E. L., Fulton
*Hogg, Garrett, Jr., Columbia
Hopkins, Thomas A., Fulton
Horror, George W., Rolla

* Visitor

Howard, Stanley P., Jefferson City
 *Hower, Marie, New York
 Hoxie, D. A., Poplar Bluff
 Hyndman, Charles E., St. Louis
 Jackson, W. R., Maryville
 James, Joseph D., Springfield
 James, R. M., Joplin
 James, William M., St. Louis
 *James, W., St. Louis
 Johnson, Emsley T., Kansas City
 Johnson, William E., Warrensburg
 Johnston, Elza L., Concordia
 Jolley, J. Frank, Mexico
 Kaiser, M. E., Moberly
 *Kampen, H. L., Monmouth, Ill.
 Kampschmidt, A. W., Columbia
 Kemp, Thomas J., Clayton
 Kendig, Howard M., Sikeston
 Kennedy, Robert W., Marshall
 Kerr, Homer L., Crane
 Kerr, R. W., Kansas City
 Kieffer, Roland S., St. Louis
 Kinney, W. M., Joplin
 Kitchen, William B., Glasgow
 Knappenberger, George E., Kansas City
 Kneihert, Fred L., Poplar Bluff
 Knight, John S., Kansas City
 Koch, Otto W., Ballwin
 Koppenhink, Walter E., Higginsville
 Kotkis, A. J., St. Louis
 *Kramer, Barnard M., Columbia
 Krause, Irl B., Jefferson City
 Kuhlmann, Frederick C. E., Webster Groves
 Kulowski, Jacob, St. Joseph
 *Ladd, G. B., Columbia
 Lamar, F. C., Kansas City
 Landis, E. E., Fulton
 Lane, Clinton W., St. Louis
 Lapp, John G., Kansas City
 Lapp, Titus S., Fulton
 Larimore, Joseph W., St. Louis
 Lau, Gustav A., St. Joseph
 Lawrence, John R., Marshall
 *Lawton, A. W., New York
 *Leech, Maurice, Columbia
 *Leifer, Wm., Columbia
 Leighton, W. E., St. Louis
 Leitch, C. G., Kansas City
 LeMone, David, Columbia
 Lewis, Bransford, St. Louis
 Lissack, Edmund, Concordia
 Lockwood, Ira H., Kansas City
 Lohr, Curtis H., St. Louis
 Long, David S., Harrisonville
 Long, Frank B., Sedalia
 Lowe, H. A., Springfield
 Lowry, Charles F., Kansas City
 Luedde, P. S., St. Louis
 Luedde, William H., St. Louis
 Luter, Carter W., Butler
 Luton, L. S., St. Louis
 McAdam, James D., Prairie Hill
 McAlester, Andrew W., Kansas City
 McCall, Greene D., Fulton
 McComas, Arthur R., Sturgeon
 McComb, James A., Lebanon
 McCormick, Frank L., Moberly
 McCraw, Doyle C., Bolivar
 McFarland, A. Sidney, Rolla
 McGuire, Morris S., Boonville
 McLeod, John, Kansas City
 McMahon, Alphonse, St. Louis

McMurry, M. C., Paris
 *Robinson, Rohrt. R., Columbia
 Robnett, D. A., Columbia
 *Rodeman, Jack M., Columbia
 Rossen, J. A., St. Louis
 *McPherson, L. H., Miami, Oklahoma
 McVay, James R., Kansas City
 Macdonnell, C. R., Marshfield
 Major, Hermon S., Kansas City
 Mallette, Cyrus, Crocker
 Manning, David F., Marshall
 Mantz, Herbert L., Kansas City
 Marshall, Alfred H., Charleston
 Martin, Thomas M., St. Louis
 *Martz, Del, St. Louis
 Mays, Frank G., Washington
 Menefee, Buell, Montgomery City
 Meredith, A. L., Prairie Home
 *Meyer, George Earl, Columbia
 *Miller, Clyde S., Columbia
 Miller, E. Lee, Kansas City
 Monroe, Alfred E., Sedalia
 *Moon, M. P., Columbia
 Moore, E. M., Higginsville
 Moore, J. G., Mexico
 Moore, Neil S., St. Louis
 *Moore, R. M., Columbia
 Morley, Frank R., Sedalia
 *Morris, Marvin C., Columbia
 Mudd, James L., St. Louis
 Mueller, Robert, St. Louis
 Mulkey, J. E., Fulton
 Musgrave, J. E., Excelsior Springs
 Myers, E. Lee, St. Louis
 Narr, F. C., Kansas City
 Neal, M. Pinson, Columbia
 Neff, Robert L., Joplin
 Neilson, C. H., St. Louis
 Neuheiser, Ben L., St. Charles
 Newell, O. U., St. Louis
 Nichols, Frank J., Centertown
 Nifong, F. G., Columbia
 Norman, Joseph B., Tipton
 Norton, Harry B., Hannibal
 *Norton, J. A., Columbia
 O'Connell, John, Overland
 Oliver, E. A., Richland
 *Olson, A. C., Kansas City
 *Orr, Thomas G., Kansas City
 Ossman, Julian A., Jefferson City
 Overholser, Milton D., Columbia
 Overholser, Milton P., Harrisonville
 Owens, Michael J., Kansas City
 Padgett, E. C., Kansas City
 Pare, Elijah Y., Leeton
 Parker, Harry F., Warrensburg
 *Parkhurst, George, Columbia
 Perry, John M., Princeton
 Pipkin, Garrett, Kansas City
 Plummer, G. C., Buffalo
 *Poe, Guy, Peoria, Ill.
 Polk, George M., Independence
 Probst, J. G., St. Louis
 Pulliam, Madison J., St. Louis
 Quinn, Abram T., St. Louis
 Rassieur, Louis, St. Louis
 Ravenel, M. P., Columbia
 Ravold, Henry J., St. Joseph
 Reder, Francis, St. Louis
 Redman, Spence, Platte City
 *Reed, Roy W., Jr., Columbia
 Reynolds, Garland, Columbia
 Rinkel, Herbert J., Kansas City
 *Ritzen, Frank W., Springfield
 Roberts, Sam E., Kansas City
 Robinson, G. Wilse, Kansas City

Robinson, G. Wilse, Jr., Kansas City
 Russell, Richard L., Springfield
 Rutledge, John F., Crystal City
 Ryan, John H., St. Joseph
 Ryland, C. T., Lexington
 *Sablan, Ramon M., Columbia
 Schlueter, Robert E., St. Louis
 Schmidtke, E. C., St. Louis
 *Schneider, B. J., Columbia
 Schofield, L. J., Warrensburg
 Schulz, Arthur P. E., St. Charles
 Scott, Henry F., Ballwin
 Scott, J. C., Lehanon
 Seibel, M. G., St. Louis
 Sewell, W. S., Springfield
 Sexton, Daniel L., St. Louis
 Sexton, Elmer E., St. Louis
 Shaw, William J., Fayette
 Shelton, E. C., Eldon
 Shelton, Edward O., Eldon
 Shelton, Prior, Kansas City
 Short, Ulysses S., St. Louis
 Sky, Milton P., Sedalia
 *Siebrandt, J. R., Kansas City
 Simmons, Sterling P., Marshall
 Simon, Jerome I., St. Louis
 Simpson, Morris B., Kansas City
 Skinner, John O., Kansas City
 Smith, C. Souter, Springfield
 Smith, James E., Rolla
 Smith, Rollin H., Rich Hill
 Smith, S. D., Columbia
 Smith, Wallis, Springfield
 Smith, W. J., Hannibal
 Sneed, C. M., Columbia
 Spector, H. L., St. Louis
 Spence, Elbert L., Kennett
 Spencer, Floyd H., St. Joseph
 Stacy, Winton T., St. Joseph
 Stauffacher, C. Gordon, Sedalia
 Stewart, James, Jefferson City
 Stewart, Wm. J., Columbia
 Stoelzle, Joseph D., Clayton
 Stone, William E., Boonville
 *Stonish, J. F., Peoria, Ill.
 Stowers, James E., Kansas City
 Stryker, G. V., St. Louis
 Stumberg, B. Kurt, St. Charles
 Suggest, F. C., Iberia
 Summers, J. S., Jefferson City

Tainter, Frank J., St. Louis
 Talbott, Hudson, St. Louis
 Tate, Prentiss S., Farmington
 Teachenor, Frank R., Kansas City
 *Terry, H. L., Columbia
 Thompson, R. L., St. Louis
 Thorn, Drury R., Kansas City
 Thornburgh, A. H., West Plains
 Thurmon, J. D., St. Louis
 Thym, Henry P., St. Louis
 Timberman, J. H., Chillicothe
 Tittsworth, Guy, Sedalia
 Titterington, P. F., St. Louis
 Trader, Charles B., Sedalia
 Trigg, Joseph M., St. Louis
 Van Ravenswaay, Alexander, Boonville
 *Veazey, A. W., St. Louis
 Veninga, Frederick W., St. Louis
 Vohs, Carl F., St. Louis
 Walker, Grant D., Eldon
 *Wallace, R. E., Indianapolis
 Walther, Roy A., Overland
 Washburn, J. L., Versailles
 *Wayne, R. D., St. Louis
 Welch, Albert S., Kansas City
 Welch, William A., Callao
 Wessling, F. J., Hermann
 West, William M., Monett
 *Wharton, D. J., San Francisco, Calif.
 White, Orville O., St. Louis
 Wilcoxon, W. B., Bowling Green
 Wilhelm, Francis E., Kansas City
 Williams, R. S., Mexico
 *Williamson, Carl S., Green Bay, Wis.
 Williamson, W. H., Mokane
 Wilson, General S., Fortuna
 Wilson, Ralph R., Kansas City
 Wimp, J. J., Kirksville
 Wise, H. J., Sparta
 *Wolf, J. W., Kansas City
 Wood, A. M., Shelby
 Wood, George H., Carthage
 Wood, V. Visscher, St. Louis
 Woolsey, Ross A., St. Louis
 Wright, James B., Trenton
 *Wyly, W. J., Kansas City
 Young, H. McClure, Columbia
 Young, John Smith, St. Louis
 Zahorsky, Theodore S., St. Louis
 Zeinert, O. B., St. Louis
 Ziegler, N. R., Columbia
 Ziegler, Wm. H., Boonville

ADAIR-SCHUYLER COUNTY MEDICAL SOCIETY

The Adair-Schuyler County Medical Society met in the office of Dr. Spencer Freeman, Kirksville, June 4 at 7:30 p. m. Dr. Ida M. Nulton, Lancaster, president, was in the chair.

Notification that Sullivan and Knox counties had been transferred to the 6th Councilor District and had been hyphenated with the Adair-Schuyler County Medical Society was received from the State Association. These two counties were unanimously voted into the Society.

Dr. A. B. Cramb, Kirksville, was duly elected to membership.

The courthouse in Kirksville was tendered as a permanent meeting place and it was decided to hold monthly meetings there.

Dr. E. W. Hickson, Milan, reported his experience last winter in immunizing forty children in rural schools in Sullivan County against diphtheria.

Dr. W. J. Stewart, Columbia, the orthopedist for

the Crippled Children's Clinic, was present and gave a full explanation of the scope of the work done, also where and how the service was supported. He stressed the fact that only indigent children were accepted by the clinic and that the family physician certified that fact. The patients are referred back to the family physician for further care.

Ten minute reports on the Kansas City Session of the American Medical Association were made by those who had attended the meeting. There were interesting things reported and all approved of the scientific exhibits.

Thirteen members were present. All members in Schuyler County were present.

J. S. GASHWILER, M.D., Secretary.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society met at the Missouri Methodist Hospital at 8 p. m., May 6, with twenty-seven present. Dr. J. M. Allaman presided.

A letter from the Parent Teacher Association asking the attitude of the Society toward the testing of high school children for tuberculosis was read and discussed. A motion by Dr. Hasbrouck DeLamater, seconded by Dr. H. E. Peterson, that the action of the Society be referred to the tuberculosis committee, carried.

The question of advertising the regular Monday broadcast was discussed. It was moved by Dr. H. W. Carle, seconded by Dr. E. M. Shores, that the matter be referred to the publicity committee for investigation, this committee to report at the next meeting. The motion carried.

Dr. E. M. Shores in a report of statistics from the Board of Health on the prevalence of tuberculosis made a plea for an early report of these cases.

The following communications were read: Acknowledgment by Dr. B. E. Miles and daughter of the floral wreath sent at the death of Mrs. Miles; a letter from Dr. E. J. Goodwin concerning Dr. Meluney's membership; a letter of appreciation and thanks from Dr. Herbert J. Rinkel; the application of Dr. M. E. Grimes for provisional membership, and Dr. Meluney's letter of appreciation.

Dr. H. E. Peterson read a paper on "Nephrosis in Children." He gave a complete picture of this condition and rounded out his discussion by the presentation of an interesting clinical history. The paper was discussed by Drs. J. M. Hughes, H. W. Carle, E. M. Shores, T. L. Howden and Gregg Thompson. The discussion was closed by Dr. Peterson.

Meeting of June 3

The Society met at the Missouri Methodist Hospital at 8 p. m. June 3, with thirty-five present. Dr. J. M. Allaman presided.

The application of Dr. M. E. Grimes for provisional membership was unanimously approved.

Dr. Hasbrouck DeLamater inquired as to the attitude toward associate members such as the Jackson County Medical Society has. The question was referred to the council.

Dr. J. M. Allaman introduced Dr. Harry Forgrave, who in turn introduced Dr. Thomas G. Orr, Kansas City, professor of surgery at the Kansas University Medical School. Dr. Orr spoke on "The Treatment of Diseases of the Gall Tract." In his discussion Dr. Orr urged more frequent drainage of the common duct and stressed caution in the treatment of acute cholecystitis, advising conservative drainage rather than the

removal of the gallbladder in the treatment of this type of case. The paper was discussed by Drs. F. H. Spencer, H. K. Wallace, H. S. Conrad and closed by Dr. Orr.

O. EARL WHITSELL, M.D., Secretary.

COLE COUNTY MEDICAL SOCIETY

The Cole County Medical Society with the Cole County Tuberculosis Society and the Parent-Teachers Association conducted an educational program on "Tuberculosis" on May 21.

In the afternoon the public was addressed by Dr. M. P. Ravenel, Columbia, of the University of Missouri, and by Dr. George Kettelkamp, Koch, Koch Hospital. These addresses were on the prevention and early diagnosis of tuberculosis. A round table discussion followed.

In the evening Dr. George Kettelkamp, Koch, addressed the members of the Society, the sisters of St. Mary's Hospital and the nurses on "Pneumothorax as a Treatment for Pulmonary Tuberculosis." The address was instructive and was appreciated by all. After the address many questions were asked and a better knowledge of the clinical use of pneumothorax was gained.

JAMES A. HILL, M.D., Secretary.

DALLAS-HICKORY-POLK COUNTY MEDICAL SOCIETY

The Dallas-Hickory-Polk County Medical Society met in Halfway in the public school building on June 2 with the following present: Drs. C. H. Brown, Fair Play; L. A. Glasco, Hermitage; V. H. Greenwood and G. C. Plummer, Buffalo; D. C. McCraw, G. K. Sims and G. D. Smith, Bolivar; R. C. Nevins, A. J. Stufflebam and H. M. Stufflebam, Humansville; W. O. Reser, Weableau, and T. D. Wrinkle, Halfway.

Dr. Robert R. Glynn, Springfield, presented a case of a child 5½ years old who had been subjected to a wound of the right side of the chest wall in the mid-mammary line, between the fifth and sixth ribs creating an open pneumothorax, from which wound there was marked bleeding and escaping air. Following treatment for combating immediate shock as well as instituting debridement, the rent in the intercostal muscles disclosing the intercostal artery as the source of hemorrhage, was closed by a double mattress suture securing hemostasis, thereby creating a closed pneumothorax. Later a roentgenogram showed a shadow of a foreign body lying between the seventh and eighth ribs but postero-lateral to the midaxillary line. An incision was made at this point and a spear-shaped piece of glass 4 cm. long, 2 cm. wide and 1 cm. thick was removed. The patient is reported to have made an uneventful recovery.

Dr. E. Loyd Cartwright, Springfield, gave an academic presentation of "Abnormal Conditions in Pregnancy" in which he stressed the subjective and the objective symptoms of the several different conditions one meets in obstetric work. He directed particular attention to hyperemesis gravidarum, eclampsia and the preeclamptic state, abruptio placentae, the different types of placenta previa as well as the acute infectious diseases. At the same time he outlined in rather classical manner the accepted treatment of each condition as it was presented.

GEORGE KIRBY SIMS, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met May 19 with nine members present.

A letter from Prosecuting Attorney Warden was read stating that J. R. Starks had been arrested, prosecuted and given a sentence of six months in the county jail for practicing medicine unlawfully. He was paroled at the suggestion of Mr. Warden. Mr. Warden asked that if any one hears of him practicing medicine to report to his office and Starks will be taken to jail to serve the sentence.

Application for membership was presented by Dr. Walter Howard, Carthage, and was referred to the censors.

It was announced that Drs. Harry M. Gilkey, A. Graham Asher and O. R. Withers, Kansas City, would present the program on May 26.

The committee on entertainment was asked to arrange the meeting of June 2 which will be the last meeting until fall.

Dr. O. T. Blanke, Joplin, presented a case of a man who following influenza presented the following symptoms: Temperature, white count of 23,000, polymorphonuclears 95 per cent; examination essentially negative except for transitory edema and redness about the face, head and ears. Albumin was present in urine.

Dr. John L. Sims, Joplin, told of a case he had seen fifteen years ago at which time he fulgurated a mole on the back of a man's neck. Five years later the mole returned and was fulgurated the second time. At the present time the man has a return of the growth which now is about the size of a prune and has some ulceration. He diagnosed the growth as an epithelioma.

Meeting of May 26

The Society met May 26 at 8 p. m.

Dr. Harry M. Gilkey, Kansas City, spoke on "The Newer Developments in Pediatrics."

Dr. A. Graham Asher, Kansas City, spoke on "Cardiology."

Dr. O. R. Withers, Kansas City, spoke on "The Practical Application of Developments in Allergy."

Meeting of June 9

A dinner meeting was held at Reding Mill Inn at which members and their wives were present. This is the last meeting until fall.

J. W. HARDY, M.D., Secretary.

JOHNSON COUNTY MEDICAL SOCIETY

The Johnson County Medical Society met May 6 at 8 p. m. in the Warrensburg Clinic, Warrensburg.

Dr. John T. Anderson, Warrensburg, read a paper entitled "Retrospections Over Forty-Seven Years of Obstetrics."

Dr. Edward Andruss, Holden, presented a paper on "Nox Vomica."

Dr. Edmund Lissack, Concordia, gave a talk on "Breach Presentations," illustrated by drawings and motion pictures. He also presented films on "Low Forceps Delivery."

After presentation of papers and motion pictures the meeting was given over to general discussion of the themes introduced by the speakers.

About twenty-five doctors from Johnson and Lafayette counties were present.

All enjoyed a luncheon after adjournment.

O. B. HALL, M.D., Secretary.

SOUTH CENTRAL COUNTIES MEDICAL SOCIETY

The South Central Counties Medical Society met at the Arcade Hotel, West Plains, June 4, with the following members and visitors present: Drs. A. H. Thornburg, E. C. Bohrer, I. W. Bingham, E. R. Keen and P. D. Gum, West Plains; H. A. Thompson, Lanton; R. A. Ryan and wife, R. W. Denney and A. C. Ames, Mountain Grove; H. B. Hull and wife, Mammoth Spring, Arkansas; J. T. White and P. E. Bushong, Gainesville; R. M. Morman, Ava; W. F. Herron, J. R. Womack and L. M. Dillon, Houston; Fred. Emmert and William H. Norton, St. Louis.

Dr. H. L. Reed, Licking, was elected to membership.

Dr. Fred. Emmert, St. Louis, gave an interesting talk on "Vaginal Discharges" and showed slides illustrating diseased conditions responsible for such discharges and emphasized that it is not enough to call such cases leukorrhea and dismiss them with a douche but that the underlying condition should be treated.

Dr. William H. Norton, St. Louis, read a carefully prepared paper on "Goiter" which was so complete that there was little left to say. One point brought out was there are large goiters that anyone can see at a glance that affect the general health but little and there are toxic goiters that impair the health seriously and yet can be detected only by the most careful examination. He explained that one important symptom by which such cases can be distinguished from certain nervous conditions is the rapid pulse that remains rapid when resting quietly and even while sleeping. The nervous patient's rapid pulse slows down at such times.

A vote of thanks and appreciation was given the speakers.

Dr. J. R. Womack, Houston, extended an invitation for the Society to hold the next meeting at Houston and asked that he be allowed to arrange for speakers, both of which suggestions the Society voted to accept.

The meeting adjourned at 4 o'clock to meet at Houston August 6.

A. C. AMES, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

15th Annual Meeting, Atlantic City, 1937

President, Mrs. Robert Fitzgerald, Wauwatosa, Wisconsin.

President-Elect, Mrs. Augustus Kech, Altoona, Pennsylvania.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

13th Annual Meeting, Cape Girardeau, 1937

President, Mrs. Walter Kirchner, St. Louis.

President-Elect, Mrs. Charles Werner, St. Joseph.

The fourteenth annual convention of the Woman's Auxiliary to the American Medical Association which met in Kansas City, May 11-15, fulfilled the desire of members of the Jackson County Auxiliary and Mrs.

Herbert L. Mantz, the convention chairman, that the convention be "the friendliest convention." Visitors were lavish in their praises of the welcome given them by the doctors and their wives, and by the spirit of hospitality felt throughout the city. Beside many private parties there were drives over the city, teas at the home of Mrs. A. W. McAlester, Mrs. Harold Kuhn, Mrs. F. Irwig, Mrs. Sam Roberts and others; a gallery walk through the beautiful Nelson Gallery of Art; luncheons, dinners and finally the brilliant "Bring-your-husband Dinner" which preceded the President's reception and ball. On May 12 which is celebrated as "hospital day" the five largest hospitals of Kansas City had teas and were open to the visitors.

Mrs. Rogers N. Herbert, Nashville, president of the National Auxiliary, presided over the business session for which some 1500 women registered. The reports of the national officers and chairmen and the state presidents showed gains in interest and enthusiasm. Almost every state reported a gain in membership. New York state was organized March 11, 1936, with five charter counties.

There were more exhibits than ever before and great interest was taken in the scrapbooks, charts, posters, sample layettes, photographs and maternity kits which showed some of the work done by the auxiliaries. Perhaps the outstanding exhibit was presented by Utah. It had been prepared and sent over the state to educate the people against quacks and cults. A miniature circus tent complete with audience and performers bore the legend, "Health is no circus."

The revision of the constitution was postponed another year. The Auxiliary had secured over 6000 subscriptions to *Hygeia* and had done outstanding work, according to Dr. Fishbein, in interesting the public in the American Medical Association's health broadcasts. Michigan, Wisconsin and Missouri led in the number of *Hygeia* subscriptions.

The convention address was given by Dr. Perry Bromberg, Nashville, Vanderbilt University.

One of the speakers at the open meeting at the new municipal auditorium was Governor Alfred Landon of Kansas who graciously included the Woman's Auxiliary when he addressed the large audience. At the Auxiliary luncheon there was read a letter from President Roosevelt commending the Woman's Auxiliary for its fine philanthropic and humanitarian work.

The new president, Mrs. Robert Fitzgerald, Wauwatosa, Wisconsin, has her A.B. and A.M. degrees from the University of Michigan and is a member of Phi Beta Kappa. She is a member of the Gamma Phi Beta sorority and is international scholarship chairman of the sorority. She is much interested in girls and their problems and is a member of the board of a home for working girls in Milwaukee. Mrs. Fitzgerald was formerly national chairman of press and publicity and editor of the news letter.

The president-elect is Mrs. Augustus Keck, Altoona, Pennsylvania, who as chairman of legislation for her state auxiliary last year attended all sessions of the state legislature, and was present at the Capitol three days a week for twenty-five weeks in the interest of the Pennsylvania Medical Association.

The first vice president is Mrs. David S. Long, Harrisonville, Mo., well known and loved not only through Missouri but through the other states. Last year Mrs. Long was chairman of public relations for the National Auxiliary.

An excellent account of the national convention by Mrs. A. B. McGlothlan, St. Joseph, a past president of the National Auxiliary, appeared in the June number of the *Quarterly Bulletin* of the Woman's Auxiliary to

the Missouri State Medical Association. Any one desiring a copy may obtain it by writing to Mrs. W. H. Goodson, Liberty.

The St. Louis Auxiliary reported at the state convention a paid membership of 240 with many others on the roll. Under the leadership of the president, Mrs. Joseph M. Trigg, the auxiliary has had fine programs, social entertainments, a public relations' meeting, sponsored an essay contest, done much philanthropic work including a gift of \$10 to the flood sufferers and responded to six definite requests from the St. Louis Medical Society. Mrs. Antoine Hall is the new president.

The Jackson County Auxiliary had its last meeting in June at the home of Mrs. H. L. Mantz when Mrs. H. C. Tripp, the new president, and the other officers were installed. Mrs. Mantz was honored at the National convention by being chosen a director.

BOOK REVIEWS

DENTAL INFECTION AND SYSTEMIC DISEASE. By Russell L. Haden, M.A., M.D., Chief of the Medical Division, Cleveland, Ohio, etc. With a Foreword by Dr. Edward C. Rosenow. Second Edition, Revised. Illustrated with 63 engravings. Philadelphia: Lea & Febiger. 1936. Price \$2.50.

Focal infection of dental origin has furnished more discussion for physicians and dentists during the past twenty years than any other medico-dental subject. The problem is still unsolved, but we are much more rational in our views today than we were a few years ago. Everyone realizes that no person can be benefited by the presence of infected teeth, infected tonsils, infected sinuses or other infected areas in the body. However, it is difficult to always place the blame for otherwise unexplained symptoms on such areas. While there have been a sufficient number of cases seen by physicians and dentists where improvement followed the removal of infected teeth, at the same time the opposite result occurs so often that one must be cautious when arriving at a decision relative to the removal of such teeth in any given case. Too many innocent teeth which are of great value to the patient in preserving his masticating apparatus have been sacrificed without care and consideration.

Haden has attacked the problem of dental infection from a bacteriological and clinical standpoint and has discussed numerous cases of various types, showing the relation of dental infection to systemic disease. His deductions for the most part are quite reasonable, but one cannot agree with his inference that practically all devitalized teeth are dangerous to health. The book should prove helpful to both physicians and dentists.

V. L.

J. Murray Steele, New York (*Journal A. M. A.*, June 13, 1936), reports a case in which the use of alkali through a span of many years for the relief of pain due to a duodenal ulcer was followed eventually by the passage of albumin, red blood cells and casts in the urine, and the appearance of severe renal insufficiency, as indicated by elevation of the urea nitrogen of the blood and marked decrease in the ability of the kidneys to excrete urea and to concentrate the urine. Recovery followed discontinuance of the use of alkalis. The usual neurologic manifestations of alkalosis, nausea, headache, nervousness and tetany were absent. Fatigue and nocturia were the only complaints.

THE JOURNAL

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THE TREATMENT OF ARTHRITIS WITH MECHOLYL IONTOPHORESIS

REPORT OF CASES

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ST. LOUIS

The etiology of chronic arthritis remains obscure. However, there are perpetuating conditions believed to be present, such as peripheral vascular impairment or disease of the peripheral blood vessels. These deficiencies seem to aggravate, prolong or maintain the disease and when present must result in a faulty local tissue metabolism through a suboxidation of the tissues or through the presence and retention of waste metabolites. Whether these metabolic upsets are initiated by bacteria in the parts, interpreted as a neurochemical change or simply as a degenerative structural change, the aim of therapy should be to improve metabolism by improving the circulation.

The importance of circulatory disturbances in chronic arthritis is generally recognized and believed by many to be an essential factor in maintaining a rheumatic condition.

Wright, and Pemberton,¹ Ruhmann,² Lunedei and Corradini³ and Kovacs, Wright and Duryee⁴ with others found that disturbances of the circulation frequently accompany and undoubtedly aggravate chronic arthritis. Hence, the improvement of disturbed circulation must play a prominent part in the consideration of the type of therapy to employ.

Upon this assumption, Kovacs⁵ experimented with acetyl-beta-methylcholine chloride Merck, (Mecholyl) in the treatment of chronic arthritis and in the spastic types of peripheral vascular diseases. His reasoning was based on the knowledge that the choline compounds relieve vascular spasm and increase peripheral circulation.

The Mecholyl used in this series of cases was furnished through the courtesy of Merck & Co., Inc.

Read before the St. Louis Medical Society, May 19, 1936.
From the St. Louis City Hospital.

His first results in the treatment of chronic arthritis were published in July, 1934. In a series of forty cases he reported improvement in 95 per cent of chronic rheumatoid arthritis and 80 per cent improvement in chronic hypertrophic arthritis. In a later report of October, 1934, consisting of seventy-five cases, R. & J. Kovacs⁶ found improvement in 90 per cent of the rheumatoid type. (This was 5 per cent less than in their preliminary report.) In the hypertrophic type the percentage remained 80.

In September, 1935, Abel⁷ reported a series of fifty-one mixed cases of arthritis, myositis and neuritis, with 90 per cent relief in the arthritic cases and 100 per cent relief in the cases of myositis and neuritis.

ACTION OF MECHOLYL

While the iontophoresis of mecholyl is directed as a local procedure with local manifestations, certain systemic reactions do occur. A brief statement, therefore, of the general constitutional action of mecholyl may be considered.

The general physiological action of mecholyl is similar to that which follows stimulation of the parasympathetic nerves. Choline and its ester, acetylcholine, have been known for many years and much literature has accumulated pertaining to their effectiveness in a variety of pathologic conditions due to vascular spasm, particularly of the peripheral vessels. It produces a vascular dilatation and therefore is a physiological antagonist to adrenalin. Its action is at once removed by atropine.

In normal persons, mecholyl causes flushing, sweating and increased salivation. The pulse rate is accelerated and the blood pressure is lowered. In some instances, during its administration, peristalsis is stimulated and defecation and urination have been observed.

The use of mecholyl iontophoresis in the treatment of arthritis is based on the ability of the drug to produce a more or less local action. By this procedure one is able to concentrate effective ions in sufficient amount to produce a

dominant local effect. This local effect may be described as a sweating of the part under treatment. The sweating persists for from six to ten hours, sometimes longer. The skin temperature is increased over the part treated from 4 to 6° F. This rise in temperature is maintained for from two to four days and is accompanied by an increased rate of capillary flow without enlargement of the capillaries.

Kovacs⁵ states that the visible number of capillaries is not increased after treatment. The skin will show slight redness and remain so for from one and one half to two hours, probably due to the enlargement of the deeper small arterioles. According to Kovacs⁵ its effect seems not to be limited to increasing the skin temperature and differs therein from a counter-irritant action. Its general physiological effects are manifest in a more or less modified degree by reason of absorption into the general circulation from the site of iontophoresis. The therapeutic effect has been explained as the deposition of the drug in the superficial tissues and by slow absorption gives a prolonged slight general vasodilatation with a predominant and prolonged local effect.

Kotkis and Melchionna⁸ state that the physiological effects produced on the dog, through administration of mecholyl by iontophoresis, serves to prove that the positively charged part of the molecule is liberated at the positive pole into the capillaries of the skin where it most probably is taken up by the blood. Conversely, they also show that controls run with both positive and negative electrodes soaked with a physiological salt solution gave essentially negative tracings on the kymograph. Plain galvanism, therefore, cannot of itself be credited with producing the general and local effects found where mecholyl is under iontophoresis.

THE TREATMENT TECHNIC

The treatment consists in iontophoresis of mecholyl in solution. A $\frac{1}{2}$ per cent solution is employed. The drug is an alkaloid with a positive charge and can be introduced by the positive pole only. As a conveyor of the mecholyl solution, a roller bandage made of Canton flannel, as used by Kotkis⁸ and others, is saturated with the solution and bound around the affected joints. In treating fingers or a hand a cotton gauntlet or glove saturated with the solution is slipped on the affected hand. These in turn are covered by a thin gauge ribbon electrode, wound to place in a spiral. The whole is then covered with a dry retaining bandage such as the Ace. The distal end of the electrode is allowed to pass through a wrap of the retaining bandage and connected to the positive pole of the galvanic generator.

A very much larger, indifferent or negative electrode is applied to the back or abdomen and firmly held in place. This electrode may consist of a sheet of block tin covered with a large moistened bath towel folded to shape. This is connected to the negative pole. The current is turned on slowly and increased to 20 or 30 milliamperes according to the tolerance of the patient. Treatments are continued for thirty minutes. To avoid the possibility of burns, care must be taken that no metal comes in direct contact with the skin. Two portions of the body may be treated at the same time by means of a bifurcated cord from the positive pole. Treatments can be given two or three times weekly. The mechanics involved in the treatment are only limited by the resourcefulness of the operator.

TREATMENT RESULTS

The St. Louis City Hospital No. 1 began the use of mecholyl iontophoresis on one G. G., white male, aged 50, who entered the hospital February 7, 1934, complaining of severe pain and swelling involving the right hand and wrist, with a duration period of seventy-two hours. He remained in the hospital, bedfast, for six weeks, unable to move the arm or have it moved without great pain. During this time various types of treatment were used such as packs, heat, iodides, salicylates and splints.

On March 20, 1934, the use of mecholyl iontophoresis was begun. Two weeks after the beginning of this treatment the patient left his bed and walked. The arm freed from the splint swung freely from the shoulder and elbow and he exhibited slight voluntary motion in the fingers. After four weeks he was discharged from the hospital to the Outpatient Department for further mecholyl treatment.

Impressed by this more or less dramatic result, the further use of mecholyl on other patients from different sections of the hospital was carried on. Submitted for your consideration is a series of seventy-three cases, sixty of which are arthritics and thirteen of miscellaneous diseases.

Of the sixty arthritics, thirty-nine were hospital patients and twenty-one were from the Outpatient Department. In this group twenty-eight were males and thirty-two females, with a total average age of 44 years. The average age of the male group was 48 years and of the female group 41 years.

As to the types of arthritis in the male group, twelve were diagnosed as atrophic and seven as hypertrophic arthritis. The females represented twenty atrophic and seven hypertrophic cases of arthritis with one traumatic arthritis. The group of gonorrheal arthritics represented

eight males and five females. There was a grand total of 1117 treatments with an average number of 18.9 per patient.

In expressing our results, we have designated them as good, fair and poor. Good results may be understood as representing freedom from pain, reduction of swelling and increased mobility of the part or parts affected. Fair is understood to represent partial relief, whereas poor is self explanatory. In our group designated as fair, the results can be qualified by the represented numbers of treatments, for most of these patients signed themselves out of the hospital before completion of treatment while the Outpatient Department patients absented themselves before a reasonable course of treatments could be given.

Of the total group of sixty arthritics, forty patients, or 67 per cent, had good results. Fifteen, or 25 per cent, fair, and five, or 8 per cent, had poor results. According to the types of arthritis, in the atrophic type the males showed 75 per cent with good results and 25 per cent with fair results. The females showed 70 per cent good, 15 per cent fair and 15 per cent poor. In the hypertrophic type, the males showed 57 per cent good, 29 per cent fair and 14 per cent poor, with the females showing 57 per cent good and 43 per cent fair. In the gonorrheal type, the males showed 63 per cent with good results, 37 per cent with fair results, and the females showed 80 per cent good and 20 per cent fair.

The miscellaneous group consisted of five cases of sciatica, two of diabetic gangrene and one each of peripheral neuritis, neuritis and endo-arteritis obliterans, one postoperative case, an ergot poisoning case, and a case designated as a questionable thrombo-angiitis obliterans. The results were good in nine, fair in one of diabetic gangrene and in the postoperative case. This case represented pain and swelling of the left arm following amputation of the breast. Poor results were obtained in the remaining case of diabetic gangrene and in the endo-arteritis obliterans. The latter patient died of pneumonia after receiving thirty-nine treatments.

The case designated as ergot poisoning deserves a degree of consideration through a brief review of her hospital record.

REPORT OF CASE

A young married woman, aged 27, entered the hospital March 20, 1934, with an incomplete induced abortion. Her past history revealed an attack of arthritis in the right knee one year previously. This attack left the knee ankylosed. She also gave a history of menorrhagia and metrorrhagia. Her marital history is one of eight years with two living children. There had been one spontaneous and three induced abortions. The physical examination I omit and proceed abruptly to the more relevant hospital events.

Under gas-oxygen anesthesia, a curettage of the uterus was performed. On March 30, 1934, at regular intervals, attacks of coldness, numbness and cyanosis of the lower extremities below the knees and in the upper extremities below the elbows were noted. The pulse at this time seemed imperceptible. A diagnosis of the following conditions was made: (1) Intermittent claudication; (2) Raynaud's disease; (3) ergot poisoning.

On April 16, 1934, the tenderness, cyanosis and coldness were more pronounced in the left limb, where this condition extended to a point six inches above the ankle joint. Threatening gangrene was noted. The following day, April 17, 1934, frank gangrene of the distal phalanges of the first, second and third toes, with foot drop, appeared in the left lower extremity. Diagnosis of gangrene due to ergotism was made and on April 19, 1934, dry gangrene of the sole and toes of the foot was present. The right foot previously cyanotic had entirely cleared but a decreased sensitivity remained to both pain and touch over the dorsum of both hands and feet. The eyegrounds showed paleness of both disks with slight edema. The vessels were tortuous. No retinal hemorrhages were noted. Thermo-couple readings of the skin temperature showed the right and left foot dorsum 98 F., right hand dorsum 95.6 F., left hand dorsum 96.4 F., right side of the abdomen 92.2 F., left side of the abdomen 99.4 F. Several blood cultures showed hemolytic staphylococcus albus. The Kahn test was negative on several occasions. On June 2, 1934, both hands showed claw-like deformity with complete muscular atony. Pain and tingling were complained of. The entire right lower extremity was atrophied with poor muscle tone. The left foot presented a black, dry gangrene, and on June 5, 1934, an amputation four inches below the knee was performed.

On June 19, 1934, the patient developed erysipelas, at which time both eyes showed optic neuritis. On this date she was sent to the Isolation Hospital, and on June 27, 1934, was readmitted to the City Hospital.

On July 3, 1934, the patient complained of tingling of the second and third toes of the remaining foot. These toes showed a reddened area on the dorsum. There was no palpable dorsalis pedis pulse. There was a loss of pain sense below the lower border of the internal malleolus. Diagnosis was given as a general vasomotor spasm. On July 9, 1934, the consultation notes state, "This patient has peripheral vascular disease involving the right leg and both hands, the muscles of both hands are atrophied with an ankylosis of the right hand. An atrophic ulcer exists on the right heel, with foot drop and a sensory change." The consultant expressed the belief that this was not entirely due to ergot. He suggested that adrenalin and insulin be used to test the sympathetic role.

On July 25, 1934, in a wheel chair, the patient was conveyed to the Physical Therapy Department where mecholyl therapy was begun on both hands. On August 10, 1934, therapy was begun on the right knee and ankle. On October 12, 1934, the left hand was normal and treatment to this hand was stopped. The right hand and fingers showed progressive extension. After seven mecholyl treatments in the hospital, on August 11, 1934, she was discharged to the Outpatient Department. There she received sixty-one treatments in a period of eight months and now her hands are accomplishing movements of fine coordination.

On February 15, 1935, for the first time since entering the hospital, she walked with aid to the car. She is awaiting an artificial substitute for the left lower extremity.

Whether this was ergotism or a Raynaud's disease,

TABLE 1

Line No.	Name	Age	Sex	Hospital No.	Diagnosis	Laboratory Findings on Admission			Urinalysis	Roentgen Ray	Hospital Treatment	No. of Treatments	Progress	Condition at Discharge
						Kahn	R. B. C.	Hhb.						
1	L. R.	58	M	6115	Primary chronic arthritis; hemiplegia; secondary erysipelas. Both elbows, wrist, knee and ankle involved						Referred to Physical Therapy for mechoyl treatment	29	Involved joints treated. At beginning joints painful and motion limited; after treatment joints moved easily and pain is lessened	Good
2	D. H.	66	F	20326	Hypertrophic arthritis; lumbar spine and pelvis (Rt.)	Negative	3,330,000		Sp. Gr., 1.025 Alkaline Sugar, 0 Albumin, 0 Micro. neg.	Lumbar spine and pelvis show great deal of hypertrophic change; loss of calcium deposit in bones perhaps due to hypertrophic arthritis of long standing	Elixir sodium bromide; regular diet; luminal; milk of magnesia; castor oil; diathermy; mechoyl therapy	3	Lumbar vertebra and right hip treated with marked alleviation of symptoms	Good
3	N. W.	21	F	20158	G. C. arthritis. Left hand and wrist swollen and painful	Negative Cervical smear positive for G.C.		9,200 11,200	Acid Sugar, 0 Albumin, faint trace Few W. B. C. No R. B. C. or casts	Left wrist reveals haziness of joint surfaces of carpal bones, some almost complete destruction of cartilage; probably due to septic arthritis, possibly G. C.	Ice bags to wrist; salicylates; boiled milk intramuscularly; mechoyl therapy	9	Left wrist and hand treated. Were swollen and painful; at discharge pain subsided and joints nearly normal in size	Good
4	E. M.	26	M	13118	Arthritis deformans; pulmonary tuberculosis. Right elbow, wrist and shoulder, neck and spine involved	Negative		75%	Sp. Gr., 1.012 Acid Sugar, 0 Albumin, 0 Many W. B. C. R. B. C. and notable bacilli	Apparent deformity of head of left humerus, probably due to old injury	Salicylates, sedatives; regular diet; mechoyl therapy	4	Right shoulder, elbow, wrist and neck treated. At start joints stiff and painful; at discharge mobility improved and much less pain	Fair
5	J. O.	60	M	4512	G. C. arthritis; diabetes mellitus. Right knees and ankle involved	Negative	4,850,000	90%	Sp. Gr., 1.018 Acid Sugar, 2 plus Albumin, 0	Narrowing of joint space of right knee; articular surface smooth; some rarefaction present especially on medial surface of tibia; also lateral displacement of tibia and fibula, perhaps due to atrophic arthritis	Full course of milk injections; plaster cast on right leg; salicylates; diathermy; mechoyl therapy	32	Under treatment swelling of right knee diminished materially. Pain disappeared and general condition improved	Good
6	G. G.	66	M	3939	Acute arthritis with effusions. Left knee swollen, painful and tender	6/11/34 1 plus 6/18/34 2 plus			Cloudy yellow Acid Sugar, 0 Albumin, 0		Aspiration of yellow fluid; culture report, no growth; mechoyl therapy	26	Under treatment left knee showed marked improvement; swelling subsided and pain eradicated	Good

7	B. V.	63	M	16493	Peripheral neuritis of neck and shoulder. (left side)	Negative			10,050	Clear Acid Sugar, plus Albumin, negative	Roentgen ray of cervical vertebra fails to reveal any definite arthritic change	Infra red; sedatives; dietetic diet No. 6; mechanical therapy	6	Neck and left shoulder treated. Had severe pain in involved area; after treatment marked improvement of shoulder pain and patient fairly comfortable	Good
8	M. B.	21	F	16992	Infectious arthritis; ankylosis (right knee)	Negative	3,770,000	1/10/35 90% 2/9/35 80%	17,500 ²	Negative	Destruction of interarticular cartilages suggestive of atrophic type of arthritis	Infra red to knee; hot saline irrigations for follicular tonsillitis; traction and sling to knee; mecholy therapy	11	Right knee stiff and painful; under treatment pain subsided and knee was freely movable	Good
9	O. B.	24	F	11395	Acute G. C. arthritis. Left ankle swollen, hot, red and tender. Right knee 5° limitation of complete extension due to pain	Negative		80%	9,000	Sugar, 0 Albumin, negative	Cast applied left ankle; 10/17/34, typhoid vaccine, ½ cc.; 11/29/34, typhoid vaccine, 1 cc.; massage and diathermy; 1-1500 KM NO ₄ ; douches for pelvic disorder; mecholy therapy	42	Left ankle was painful, swollen and stiff; at end of treatment patient walked well but with a slight limp; no pain	Good	
10	C. W.	12	F	2361	Arthritis. Painful flexed elbows. Pain increased on extension	Negative	5,000,000	85%	15,200 ³	Sugar, 0 Albumin, 0 2-3 WBC/HPF 3-5 RBC/HPF No casts	No pathology of long bones	Sedatives for pain; orthopedic treatment for contractures, rope pulling exercises, etc.; referred to physical therapy for mecholy treatment	5	Both elbows treated with marked improvement; recovery slow but progressing; contractures less; patient has no complaint of pain	Good
11	R. M.	54	M	15163	Arthritis deformans; lobar pneumonia; pyoderma. Knees, ankles, hands and feet involved	3 plus		90%	6,400 6,000	Clear Sp. Gr., 1.018 Sugar, 0 Albumin, 0	Haziness in frontal sinus; wrists, ankles, left elbow show thinning of cartilage but little hypertrophic change; process more pronounced in wrist joints; condition probably due to atrophic arthritis	Amm. mercury for pyoderma; milk injection for arthritis; autogenous vaccine for pyoderma; optochin base plus digitals for pneumonia; mecholy therapy for arthritis	17	Patient died 4/7/35 from lobar pneumonia. On 3/31/35 arthritis markedly improved in all joints involved	Died
12	L. T.	5	F	4530	Acute infectious arthritis right knee	Negative	3,800,000	70%	12,300 ⁴	Negative	No definite evidence of pathology in either knee	6/20 and 6/22, aspiration of 20 cc. cloudy yellow fluid; 6/24, aspiration of 25 cc. thin greenish fluid; diathermy and mecholy; cultures negative	9	Right knee swollen and stiff; unable to move; under treatment improved and knee normal in size; walked without difficulty; at discharge all cultures negative	Good
13	J. S.	20	F	7574	G. C. arthritis; right knee swollen and painful; pits on prescription	Negative	4,700,000	80%	12,000	Dark, cloudy Sp. Gr., 1.010 Alkaline Albumin, 1 plus Many W. B. C.	No pathology in bones of right knee	Aspiration of 50 cc. cloudy, yellow, odorless fluid; culture, gram negative intracellular diplococci; salicylates; G. C. vaccine; typhoid vaccine; bake to knee; cast; mecholy therapy	18	Knee quite swollen and painful; under treatment pain greatly reduced and patient walked easily without aid of cane	Good

Differential Counts:

1. Stabs 20; segments 50; lymphocytes 50; monocytes 7.
2. Eosinophiles 1; segments 64; lymphocytes 34; monocytes 1.

3. Basophiles 0; eosinophiles 0; myelocytes 0; juvenile 4 and 0; stabs 6 and 10; segments 66 and 68; lymphocytes 20 and 10; monocytes 4 and 4.
4. Stabs 5; segments 58; lymphocytes 30; monocytes 2.

TABLE 1 (Continued)

Line No.	Name	Age	Sex	Hospital No.	Diagnosis	Laboratory Findings on Admission				Urinalysis	Roentgen Ray	Hospital Treatment	No. of Treatments	Progress	Condition at Discharge
						Kahn	R. B. C.	Hhb.	W. B. C.						
14	E. L.	46	M	21719	Chronic arthritis; left foot and ankle swollen; painful on motion	Negative				Negative	No pathology in left ankle bones	Salicylates, heat and rest; throat positive for diphtheria; 10,000 units antitoxin and transferred to Isolation Hospital. On readmittance given salicylates and mecholyl therapy	18	After readmittance left foot and ankle still swollen, stiff and painful; after treatment pain subsided and patient walked without aid of crutches or cane	Good
15	G. K.	56	M	18173	Thrombo-angiitis obliterans; pain, tingling and burning sensation in feet when standing; cyanosis of feet and legs when in dependent position	Negative	5,030,000	98%	8,750 ⁰ 16,500	1/31/35: Sp. Gr., 1.018 Acid Many phosphate crystals 2/7/35: Sp. Gr., 1.020 Alkaline Occasional pus cell	Some hypertrophic change of lumbar vertebra; some calcareous plaques in descending aorta; no bone pathology of ankles; some bone atrophy of feet which may be due to disease; no definite evidence of calcification of arteries in this region. 2/13/35, chest plate shows increased lung markings; cardiac shadow and aorta appear enlarged; probably due to chronic congestion and irritation	Thermo baths; arterial exercise and postural exercise; sedatives for pain; mecholyl therapy	19	Began mecholyl 2/3/35, to both ankles. 2/7/35, patient running P. M. temperature 101°-103°. 16,500 W. B. C. Infectious blood picture. 2/11/35, bears weight on feet, but pain remains in toes, improving. 3/10/35, complains of some pain in left foot. Missed two treatments. 3/23/35, walks without help for short distance. 4/5/35, discharged and referred to O. P. D. for further treatments. Condition greatly improved	Good
16	E. K.	31	M	A-8208	G. C. arthritis; left ankle shows limitation of motion, pain, swelling and tenderness	Negative	4,725,000	80%	8,400	Clear Sp. Gr., 1.055 Alkaline Sugar, 0 Albumin, 0	None	Diathermy and mecholyl therapy	3	Left ankle improved; pain swelling subsided; pain diminished; G. C. complement fixation 4 plus; referred to O. P. D. for further mecholyl therapy	Fair
17	O. E.	41	M	21543	Sciatica (left); tenderness along course of sciatic nerve in thigh and marked tenderness in calf of left leg	Negative	4,210,000	80%	5,800	Clear Sp. Gr., 1.010 Acid Sugar, 0 Albumin, 0	No evidence of pathology	Salicylates, aspirin, hot packs, bismorhoidectomy, diathermy, mecholyl therapy	6	Marked tenderness along course of sciatic nerve in thigh and calf of left leg; hardly able to walk; on discharge to O. P. D. could walk with only small amount of distress	Good
18	L. M.	56	F	A-811	Hypertension, angina pectoris; hypertrophic arthritis; pain and swelling of right knee; patient unable to walk	Negative	4,200,000	80%	6,000	Lemon color Sp. Gr., 1.008 Acid Sugar, 0 Albumin, 2 Occasional hyaline and granular cast	Right knee and right ankle reveals slight hypertrophic change	Salicylates, aspirin, diathermy, mecholyl therapy	2	Unable to walk; after treatment pain disappeared somewhat and motion materially increased	Fair

19	E. N.	54	F	4721	Acute arthritis, right knee and left wrist, index finger right hand; swollen and painful	Negative			9,250	Sugar, 0 Albumin, 0 W. B. C. and much cellular debris	Some ptosis of transverse colon; no bone pathology in knee or wrist	Bismuth subcarbonate, soda bicarbonate, salicylates, mecholyl therapy	3	Joints involved stiff and painful; under treatment stiffness and pain relieved to some extent; referred to O. P. D. for further mecholyl therapy	Fair
20	J. T.	51	M	13653	Atrophic arthritis, left ankle and left first finger swollen and stiff	Negative	3,080,000	90%	14,000	Sugar, 0 Albumin, 0	Thickening of pleura of right side; heart and aorta enlarged; right diaphragm elevated; no evidence of pneumonic consolidation; condition may be due to pleurisy involving right side	Magnesium sulphate, packs to feet, milk intramuscularly, salicylates, mecholyl therapy	45	Pain and swelling to treated joints greatly relieved; walks without aid of crutches or cane	Good
21	H. G.	53	F	17330	Diabetic gangrene left second toe, swollen and very red	Negative	4,800,000	70%	6,100*	Sugar, 4 Albumin, 1 6-10 W. B. C. Acetone, 4 plus	None	Mecholyl therapy, heat, hakes, insulin; amputation of toe and finally of left leg at mid thigh	7	Left second toe gangrenous, moist and oozing; foul odor; second toe definitely lost; finally leg had to be amputated at mid thigh	Poor
22	L. G.	32	F	A-6733	Atropic arthritis; left knee swollen stiff and ankylosed	Negative	4,200,000		7,400*	Sugar, 0 Albumin, 0 Many epithelial cells; much debris	Complete thinning of the interarticular space of knee, probably due to atrophic type arthritis	Milk I. M.; bismuth sub-salicylates I. M.; diathermy; mecholyl therapy	2	Left knee swollen and ankylosed; no improvement. Orthoplasty suggested but patient decided to wait; signed her release from hospital	Poor
23	L. D.	31	M	A-7397	Chronic arthritis; pain and swelling left wrist; pain and stiffness in left knee	Negative		70%	8,000	Sugar, 0 Albumin, trace occasional pus cell		Milk injections; aspiration of left knee; G. C. fixation 2 plus G. C. filtrate (Corbus Ferry) injections; diathermy; mecholyl therapy	12	Left knee and wrist quite painful and swollen with pronounced stiffness; at the end of treatment swelling subsided, pain much less and motion increased	Good
24	A. B.	52	M	7435	G. C. arthritis; right knee painful, tender and swollen	Negative		80%	12,500			Aspiration; G. C. filtrate; milk injections; hot packs; mecholyl therapy	7	Right knee swollen and painful with limitation of motion; at the end of treatment pain subsided and motion improved. Urethral smear positive for G. C. No growth reported from aspirated knee joint.	Good
25	P. S.	42	M	A-7643	G. C. arthritis; left ankle and left hand painful and swollen	Negative		70%	11,000			Salicylates; bed rest; milk injections; G. C. filtrate (Corbus Ferry); mecholyl therapy	4	Painful and swollen left ankle and hand. Urethral discharge positive for G. C.; G. C. fixation also positive. At end of treatment improved sufficiently to be discharged and referred to O. P. D.	Good

5. Basophiles 0; eosinophiles 0; microcytes 0; juvenile 0; stabs 22; segments 64; lymphocytes 10; monocytes 4.

6. Basophiles 0; eosinophiles 0; myelocytes 0; juvenile 0; stabs 6; segments 78; lymphocytes 12; monocytes 4.

7. Basophiles 2; segments 61; lymphocytes 36; monocytes 1.

TABLE 1 (Continued)

Line No.	Name	Age	Sex	Hospital No.	Diagnosis	Laboratory Findings on Admission				Urinalysis	Roentgen Ray	Hospital Treatment	No. of Treatments	Progress	Condition at Discharge
						Kahn	R. B. C.	Hhb.	W. B. C.						
26	A. S.	45	F	20119	Hypertrophic arthritis; cancer of breast; left knee and ankle painful to passive movement; no redness or swelling; tenderness over lumbar spine	Negative	3,650,000		8,400	Sp. Gr., 1.010 Sugar, 0 Albumin, 0	No sign of injury of left knee and ankle; some slight artbritic change	Regular diet; codeine; luminal; cascara; milk of magnesia; mecbolyl therapy	5	On mecbolyl treatment to left ankle marked improvement in mobility of joint and freedom from pain	Good
27	H. G.	22	M	19013	Acute G. C. arthritis; subacute prostatitis; left knee, shoulder and elbow, swollen, hot and tender	Negative			11,180	Cloudy Acid		Full course of milk injections; regular diet; luminal; aspirin; mecbolyl therapy	16	The left knee, shoulder and elbow pronounced limitation of motion; painful and swollen; after mecbolyl therapy swelling and pain subsided and motion improved markedly	Good
28	B. S.	65	M	21356	Pulmonary tuberculosis; Herpes Zoster in area of left sciatic nerve	Positive	5,330,000		8,600	Clear Sp. Gr., 1.020 Few W. B. C.		Regular diet; potassium iodide; codeine; aspirin; hot water bag to leg; mecbolyl therapy	3	Sharp shooting pain in both legs more pronounced in left; at the end of treatment free from pain	Good
29	T. M.	31	M	21530	Pulmonary tuberculosis, active; chronic arthritis involving both hips, knees and ankles; joints painful, swollen and tender with limitation of motion	Negative	3,610,000		12,400 ^a	Reddish Sp. Gr., 1.020 Alkaline Albumin, 2 plus Few R. B. C.	Negative	Regular diet; sodium salicylate; sodium bicarbonate; codeine; mecbolyl therapy	7	Unable to walk; at end of treatment was walking without much difficulty	Good
30	O. B.	44	M	14463	G. C. arthritis; right knee swollen, hot and painful on motion	4 plus Wass. 3 plus Sp. Wass. 3 plus G.C. Fixa.		80%	8,000	Sp. Gr., 1.030 Acid		Sodium salicylate; sodium bicarbonate; luminal; KI and Hg by mouth; mecbolyl therapy	4	Improved under treatment, pain and swelling subsided and was much more comfortable; referred to O. P. D.	Fair
31	G. J.	65	M	19050	Cardiac decompensation; chronic arthritis; both knees painful on motion	Negative	3,200,000	70%	6,800	Negative		Digitalis; mecbolyl therapy	2	Under treatment pain in knees was relieved	Good
32	G. L.	41	M	4078	Infectious arthritis; right knee and ankle tender, swollen and painful on motion	Negative		75%	12,600	Sp. Gr., 1.018 Alkaline Sugar, 0 Albumin, 0		Rest; heat; salicylates; mecbolyl therapy	6	Under treatment, pain subsided and motion increased	Fair

33	W.P.	30	M	11634	Infectious arthritis; right knee and elbow tender and swollen; right knee held in semiflexed position	Negative			13,900 ⁹	Sp. Gr., 1.025 Acid Albumin, 1 plus Few W. B. C.	No pathology of right knee or elbow	Rest; heat; salicylates; sedatives; aspiration of right knee; mecholyl therapy	10	Unable to walk; knee still slightly swollen but patient able to walk on crutches; referred to O. P. D.	Good
34	M.B.	65	M	19200	CO. poisoning; chronic arthritis in toes of both feet; some slight rigidity of lower extremities	Negative	2,200,000		12,800	Negative		Blood transfusion; methylene blue intravenously; oxygen; sedatives; mecholyl therapy	2	Arthritic condition somewhat improved; pain less; referred to O. P. D.	Fair
35	J.W.	43	M	13464	Arthritis deformans of lumbar spine, hip and hands; has pain in lumbar area and in joints of hands and hips	Negative	5,780,000	85%	7,800	Negative	Hypertrophic arthritis of lumbar spine, hips and hands	Salicylates; sedatives; mecholyl therapy	21	Improved under mecholyl therapy sufficiently to touch fingers to palms which he had been unable to do for 2 or more years. Referred to O. P. D.	Good
36	G.B.	32	F	A-5107	Arthritis, right shoulder quite painful with limitation of motion	4 plus Wass.	4,950,000		9,950	Negative		Salicylates; heat; neoarsphenamine; sedatives; mecholyl	5	Improved under treatment but released from hospital under protest	Fair
37	G.G.	50	M	18679	Infectious arthritis, right hand and wrist swollen, tender and painful	Negative			14,000	Negative	Right hand and wrist shows no pathology	Ice packs; salicylates; forced fluids; diathermy; manipulation of joints under anesthesia; milk injections; mecholyl therapy	12	Extremely painful wrist and hand (Rt.), badly swollen; after twelve treatments swelling subsided and pain diminished, could be discharged from the hospital and referred to O. P. D. for further treatment	Good
38	B.I.	68	M	A-11492	Infectious arthritis, right wrist painful, swollen and tender with marked loss of motion	Negative		75%	6,500	Negative	Articular cartilage of the bones of right wrist thin and joint spaces slightly narrowed; no actual bone destruction	Aspirin; codeine; luminal; diathermy; mecholyl therapy	8	Under treatment patient showed steady improvement; transferred to O. P. D. for further treatment	Fair
39	M.G.	33	F	A-11113	Multiple G. C. arthritis, involving both knees, ankles, wrists and elbows; painful and swollen, motion limited	G.C. Fixa. Negative	4,985,000	80%	6,800 ¹⁰	Negative except for W. B. C. and occasional R. B. C.		G. C. filtrate (Corhus Ferry); salicylates; mecholyl therapy	17	Could not walk well due to limitation in both knees and ankles. Hands, wrists and shoulders painful and swollen; at end of treatment condition improved and patient walked better; pain in other joints also subsided	Good
40	O.R.	55	M	A-6857	Infectious arthritis, left wrist painful, swollen and tender	1 plus Wass.		80%	10,800	Sugar, 1 plus occasional W. B. C.	Left hand and wrist show no definite bone pathology	Hot and cold packs; salicylates aspirin; mecholyl therapy	2	Condition slightly improved, pain and swelling somewhat less; referred to O. P. D.	Fair

8. Basophiles 0; eosinophiles 0; myelocytes 0; juvenile 0; stabs 4; segments 56; lymphocytes 31; monocytes 8.

9. Basophiles 0; eosinophiles 0; myelocytes 0; juvenile 1; stabs 3; segments 59; lymphocytes 33; monocytes 4.

10. Basophiles 0; eosinophiles 0; myelocytes 0; juvenile 0; stabs 7; segments 58; lymphocytes 33; monocytes 2.

TABLE 1 (Continued)

Line No.	Name	Age	Sex	Hospital No.	Diagnosis	Laboratory Findings on Admission				Urinalysis	Roentgen Ray	Hospital Treatment	No. of Treatments	Progress	Condition at Discharge
						Kahn	R. B. C.	Hhb.	W. B. C.						
41	B. Y.	19	F	A-12158	Multiple G. C. arthritis involving left wrist, right index finger and right ankle; joints painful tender and swollen	Negative Wass. Negative G.C. Fixa 4 plus Sncar Pos. for G. C.		80%	10,600 15,000 13,000	Negative	No evidence of fracture or dislocation of bones of left wrist; no evidence of other bone change	Salicylates; ice bag to hand; mecholyl therapy	17	Under treatment patient greatly improved; marked diminution of pain and swelling	Good
42	J. M.	45	M	A-7575	G. C. arthritis, left ankle and knee swollen and painful with limitation of motion	Negative	4,560,000	70%	7,750 ^{mu}	Essentially negative	No bone pathology	Aspiration left knee 50 cc. clear yellow fluid; culture, no growth. G. C. fixation, 4 plus. Aspirin; codeine; milk injections; mecholyl therapy	8	Pain and swelling of left knee and ankle with effusion and limitation of motion in knee. Patient improved under therapy and transferred to O. P. D. for further treatment	Fair
43	K. W.	49	F	21180	Arthritis deformans of 5 years' duration, involving knees, feet and ankles	Negative	3,050,000		9,650	Clear Sp. Gr., 1.005 Alkaline Sugar, 0 Albumin, 0 Micro., neg.	Knees and ankles reveal great deal of absorption of interarticular cartilages; both arches of the feet reveal a great deal of flattening	Salicylates; mecholyl therapy	35	Painful joints for about five years; in and out of hospital number of times. On last admittance could not walk on account of pain and limited motion of joints involved; after treatment was up in wheel chair and walked to some extent	Trans. to infirmary Good
44	M. C.	76	M	A-9439	Endoarteritis obliterans (right foot)	Negative		75%	9/14/35 10,200 10/14/35 20,700	Clear yellow Acid Sugar, 0 Albumin, 0 Micro., neg.		Codeine; aspirin; mecholyl therapy	39	Present condition began about one year ago with ulcer on great toe of right foot, with extreme burning sensation. Did not improve under treatment and leg amputated at mid thigh; stump became gangrenous; patient developed pneumonia and died	Died
45	E. M.	61	F	21115	Diabetes (8 years), gangrene right foot	Negative	5,000,000		9,000	Cloudy yellow Sp. Gr., 1.015 Acid Sugar, 3 plus Albumin, 0 Occasional W. B. C.		Diabetic diet; mecholyl therapy	18	Old diabetic with arteriosclerosis; gangrene threatening in right foot. Under treatment patient showed some improvement in right leg and foot; general condition good and patient now gets around on crutches	Fair

46	A. S.	27	F	4951	Septic induced abortion; ergot poisoning; gangrene left foot, septicemia	Negative	3,670,000 80% 2,900,000 3,700,000	13,850 13,000	Sugar, 0 Albumin, 0 Micro., neg.	Intra-uterine douches KMnO ₄ ; blood transfusions; antitoxin; amputation left leg; mecholyl therapy to both hands and right leg	7	Ergot poisoning; patient's left foot became gangrenous; leg amputated; right foot and ankle cold and stiff; left hand stiff with fingers fully extended, right hand ankylosed with fingers cupped tightly into hand. After 7 treatments to both hands and remaining foot discharged and referred to O. P. D. for further treatment	Good
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11. Eosinophiles 2; stabs 8; segments 54; lymphocytes 33; monocytes 3.

TABLE 2

Line No.	Name	Age	Sex	Diagnosis	Roentgen Ray	Number of Mecholyl Treatments				Progress	Condition on Discharge	Return for More Treatments
						3 Mo.	6 Mo.	12 Mo.	Total			
1	I. U.	64	F	Polyarthritis	Accessory navicular bone present but no evidence of injury to bones of left foot	21	27		27	At start left hand and foot and both knees swollen and painful. At discharge swelling decreased and pain subsided	Good	No
2	L. G.	61	F	Atrophic arthritis left knee and ankle	Some thinning of articular cartilages of tarsal bones of left foot with some evidence of atrophy of bone; probably due to atrophic arthritic process	6			6	Joints involved painful and swollen; no improvement under treatment	Poor	No
3	L. B.	45	M	Sciatica (left)	None	12			12	Painful locomotion due to pain in hip; after 12 treatments locomotion without pain	Good	No
4	F. L.	44	F	Infectious arthritis right knee and ankle	Loss of intra-articular distance in right knee with evidence of bone destruction of both femur and tibia near articular surface, probably due to infectious arthritis	26			34	Knee and ankle stiff and painful; at end of treatment motion increased materially and without pain	Good	No
5	I. K.	50	F	Arthritis deformans knees and wrists	None	16			16	Joints involved swollen and painful; patient much improved at discharge	Good	No
6	E. S.	38	F	Arthritis (right knee 2 years)	None	26			26	Right knee stiff and painful. After 12 treatments patient absent 2 months. On return received 14 treatments and now in good condition	Good	No
7	M. P.	49	M	Sciatica (right)	None	9			9	Severe pain in right hip and knee; pain disappeared after 9 treatments	Good	No

TABLE 2 (Continued)

Line No.	Name	Age	Sex	Diagnosis	Roentgen Ray	Number of Mecholyt Treatments				Progress	Condition on Discharge	Return for More Treatments
						3 Mo.	6 Mo.	12 Mo.	Total			
8	R. M. B.	11	F	Atrophic arthritis, hands, knees and ankles	None	37	52		52	Joints involved stiff and painful. Under treatment pain was relieved but no increase in motion	Good	No
9	H. R.	50	F	Arthritis deformans	None	13	17		17	Left wrist and elbow painful and stiff. Unable to work. Under treatment pain disappeared and motion increased. Patient now working	Good	No
10	V. P.	39	M	Chronic arthritis, knees, ankles and feet	None	38	71	87	87	Patient unable to stand due to pain and ankylosis in involved joints. After prolonged treatment improved to extent of being able to work	Good	No
11	C. J.	61	M	Arthritis, knees and ankles	None	18			18	At start knees and ankles stiff, painful and limited in motion. At discharge, could walk well and pain had disappeared	Good	No
12	B. McD.	33	F	Atrophic arthritis, left wrist and hand	None	24			24 to date	Hand and wrist stiff and painful. At present, pain has disappeared, good motion in hand, wrist remains stiff, still under treatment	Good	
13	M. H.	66	F	Cancer of left breast removed 17 months previously, at present pain and stiffness in left arm	None	36	46		46	Left arm is stiff, painful and cold. At end of treatment arm was much warmer and motion in elbow had increased markedly. Hand had poor mobility	Fair	No
14	V. M.	46	F	Chronic arthritis 8 years duration, knees, ankles, wrists and shoulders	None	16			16	Involved joints quite painful and swollen. Had been unable to work. Under treatment pain and swelling subsided and she is able to work	Good	Yes, after becoming without treatment for 8 months
15	D. B.	32	M	Sciatica (left)	None	10			10	Walked with great difficulty at start. After 10 treatments pain had disappeared	Good	No
16	E. R.	59	F	Arthritis deformans, both hands	None	21			27 to date	Hands were stiff and swollen. At present swelling reduced and spread of fingers greater. Still under treatment	Good	
17	O. D.	55	F	Arthritis both knees and wrists	None	26			39 to date	Knees and wrists swollen, painful and stiff. Unable to walk. At present, pain much less and swelling reduced; patient now walking, still under treatment	Good	
18	R. G.	65	F	Arthritis, left shoulder, arm and wrist (traumatic)	None	31			37 to date	Severe pain in shoulder, wrist and arm; at present pain much less and motion increased, still under treatment	Good	
19	P. K.	48	F	Arthritis deformans wrists, elbows and knees	None	11			11	Pain somewhat relieved, slight reduction in swelling	Fair	No
20	I. K.	73	F	Neuritis, right knee and left shoulder	None	5			5	Involved joints quite painful on motion. After 5 treatments pain subsided materially	Good	No

21	M. S.	59	F	Arthritis deformans, knees, hands and wrists	None	31			42 to date	At start fingers flexed tightly in the palms of hands. Knees swollen and immobile. At present swelling reduced and motion increased in both knees. Hands improving markedly under treatment	Good	
22	M. V.	60	F	Hypertrophic arthritis, hands and elbows	Elbows and hands show definite extensive arthritic change. Identity of carpal bones lost and cartilages practically destroyed. Marked hypertrophic change	27			27	Hands and elbows painful and stiff with complete loss of motion in elbows. Under treatment pain subsided and motion materially increased	Good	No
23	A. B.	28	F	Arthritis (10 years) right wrist, both feet and ankles	None	5			5	Joints swollen and painful; practically no improvement under treatment	Poor	No
24	J. C.	77	M	Hypertrophic arthritis, both knees, duration 4 years	None	8			8	Joints painful with limited motion. After 8 treatments pain disappeared with slight increase in motion	Fair	No
25	P. R.	57	M	Infectious arthritis, knees, elbows and wrists	Deformity of both wrists; appears to be ankylosis of all carpal bones; joint spaces of both wrists narrowed and some roughening of articular cartilage; perhaps due to infectious arthritis	32	43		43	Joints involved had limited motion and were quite painful. Under treatment pain lessened, but no increased motion	Fair	No
26	A. S.	27	F	Septic induced abortion; ergot poisoning; gangrene left foot; septicemia	None	26	43	61	61	Hands and right foot swollen and ankylosed, cold, and fingers of right hand flexed and cupped tightly in palm. Left leg amputated, following ergot poisoning with gangrene. After 7 treatments released from hospital. Mecholyl therapy administered to both hands and right foot 2 or 3 times weekly for approximately 8 months. Left hand now normal, right has 60 per cent restored function, right foot shows increased mobility and all extremities are warm	Good	No
27	G. G.	50	M	Infectious arthritis, right hand and wrist	None	29	53	83	83	After 7 weeks of hospital treatment the patient was referred to physiotherapy for mecholyl iontophoresis. At beginning, right hand, wrist and elbow swollen and painful. Brought to department on stretcher. After receiving 12 treatments improved, released from hospital and referred to O. P. D. After 12 months treatment condition normal with exception of slight stiffness in wrist	Good	No

great improvement resulted under mecholyl iontophoresis, without which further crippling, even to a loss of other portions of the extremities, might have occurred.

SUMMARY AND CONCLUSIONS

At St. Louis City Hospital No. 1, the treatment of arthritis with mecholyl iontophoresis has been used and clinically evaluated.

Seventy-three cases are reported. Sixty of these were arthritis and thirteen of miscellaneous diseases. The use of mecholyl therapy by the method of iontophoresis on vascular spasm and impairment of the peripheral circulation has been expressed. The related case of ergotism or Raynaud's disease substantiates the value of mecholyl in this type of vascular impairment.

With mecholyl iontophoresis 67 per cent of the arthritics show good results, 25 per cent fair and 8 per cent poor.

Mecholyl iontophoresis has been discussed not with the belief that it is a cure for arthritis, but that it is of distinct service as an adjunct in treatment, especially in the chronic case.

In conclusion, I desire to acknowledge my thanks to Dr. A. P. Rowlette, Medical Director of the St. Louis City Hospital No. 1, for his courtesy and complete cooperation; to Miss Margaret Bell, physiotherapist to the Hospital, for her unwavering interest and care of the patients represented in this series and for the completeness of her records; to Dr. P. G. Moskop, for his interest and on whose ward service the first case originated, and to Dr. Solon Cameron for his interest and cooperation.

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DISCUSSION

DR. F. H. EWERHARDT, St. Louis: In discussing Dr. Mathae's paper it seems appropriate to mention that we have been working with mecholyl iontophoresis in the Department of Physical Therapy, Barnes Hospital, for more than two years and it is the experience which we have obtained during this time which prompted me to discuss this paper. Dr. Mathae brought out certain definite points which bear reiteration. They are: (1) By means of the galvanic current it is possible to cause certain drugs to penetrate the superficial tissues of the

human body. (2) By means of this particular drug, mecholyl, certain systemic reactions may be noted, namely; increased salivation, general flushing of the skin, a rise in pulse rate and a drop in blood pressure. These reactions have been observed so often that there can be no doubt about them. (3) The local manifestations are an increase of the circulation in the arterial tree which remains present for many hours, in contradistinction to the dilatation present in hyperemia caused by the application of heat and which soon disappears.

Clinically, Dr. Mathae referred to its application in arthritis and I am pleased to be able to confirm his findings. We too have found this treatment of considerable value in atrophic arthritis where the patient experienced diminution of pain and swelling and an increase in joint motion and ability to use the joint. We have also found mecholyl iontophoresis of considerable value in traumatic arthritis, myositis and in peripheral vascular diseases of the lower extremities due to spasm of the arterial tree.

DR. OLIVER ABEL, JR., St. Louis: Dr. Mathae deserves credit for his excellent presentation of such an interesting subject. The whole subject of arthritis is receiving more attention by the profession, and rightly so. Arthritis probably outranks both heart disease and tuberculosis in its incidence. The suffering and deformities resulting from it have really caused grave economic concern. The physicians in the past, in a large part, have looked upon arthritis with too much pessimism, and because brilliant results are not obtained as frequently in this disease as in others they have too easily become discouraged. The increased interest that is taking place in regard to rheumatism is most encouraging and no doubt will stimulate us so that the outlook will not be as gloomy as in the past.

I consider mecholyl iontophoresis another means of therapy and deserving of a definite place in the physiotherapeutic measures that are being used. The simplicity of administration and the safety to the patient recommend its consideration. In a personal series of seventy-seven cases of both osteo-arthritis and rheumatoid arthritis that have received this treatment during the last one and one half years, there has resulted a relief of pain in about 85 per cent. It is true they are not all cured, nor is this method to be considered a cure, but many have been able to go for comparatively long periods without needing more treatments.

I have experienced a definite increase in mobility and lessening of swelling in a considerable number of the cases of rheumatoid arthritis.

Cases of myositis do exceptionally well.

DR. A. J. KOTKIS, St. Louis: I want to compliment the speaker on the excellent manner in which he presented his data. Many of the end results that he reports I have witnessed personally.

For the last several years at the Firmin Desloge Hospital, we have been interested in mecholyl iontophoresis mainly from an experimental viewpoint. On the laboratory animal we have proven beyond all doubt that this chemical is introduced into the tissues by the galvanic current and, by means of a biological assay technic, we can demonstrate its presence in the capillary circulation at the site of application in quantities ranging from 1 in 500,000 to 1 in 750,000.

In clinical administration of mecholyl iontophoresis at the Firmin Desloge Hospital Physical Therapy Department, we have administered this treatment to two hundred patients with a grand total of about two thousand treatments. It is our desire to ascertain in what type of cases this therapy is most beneficial. Previous speakers mentioned their excellent results obtained from treating traumatic pain and various

peripheral vasospastic conditions. Our experiences have been equally as good as these already reported.

In the routine treatment of chronic arthritis with mecholyl iontophoresis we have realized how sadly deficient is the present classification of arthritis. The main groups such as rheumatoid and osteo-arthritis may be further divided into five or six subdivisions. In the critical analysis of our two hundred cases we are attempting to classify these subgroups in reference to their response to treatments.

There has been the question raised that the galvanic current itself will produce results similar to those obtained by mecholyl iontophoresis. In our experimental work when using the galvanic current itself we have been able to demonstrate the production of a minute amount of an acetyl-choline-like substance with the "make" of the current. This substance is present only for a short interval and is then rapidly destroyed by the blood.

Mecholyl iontophoresis has the advantage of introducing a more stable substance, acetyl-beta-methyl-choline-chlorid, and also in much larger quantities. Mecholyl iontophoresis in my opinion is an important adjunct in the treatment of chronic arthritis and gives promise of reopening another field for the administration of potent drugs not readily administered intravenously in bulk.

OLIVO-PONTO-CEREBELLAR ATROPHY

CASE PRESENTATION

A. L. SKOOG, M.D.

KANSAS CITY, MO.

Although I have had the opportunity of observing this unusual, interesting and certainly uncommon case for a period of about nine years I should like to have had more time for noting the patient's progress. This disease is always decidedly chronic. Actually an autopsy, which now is not in sight, would add greatly to the purely scientific value of a presentation.

I have found in the literature some twenty-eight reasonably certain cases. Some of these, with and without autopsy, seemingly are quite pure but almost one half present either clinical or pathological evidence of some involvement of other pathways and nuclear centers than those belonging to the neocerebellar or pallido-cerebellar systems. As an illustration your attention is called to the single case of an olivobulbo-cerebellar atrophy recorded by Lejonne and Lehmite.¹²

While references to this syndrome have been made by Pierret¹⁴ in 1872 and by Royet and Collet¹⁵ in 1893, yet it remained for André Thomas¹⁹ in his splendid thesis on the cerebellum in 1897 and Dejerine and Thomas⁴ in 1900, to place this syndrome on a definite scientific pedestal.

CASE REPORT

Case H. Male, aged 49, railway postal clerk. The man first came under my observation nine years ago with a history of having been ill sixteen years. The disease was initiated with nervousness, an unsteadiness in walking and an occasional mild muscle or joint pain. There has been no loss of working time on account of the trouble. Outside of these few subjective symptoms the patient had but little to volunteer relative to his illness. The progress of the complaints has been slowly, steadily downward.

Before coming under my care the patient had been diagnosed syphilitic by several clinicians. A few courses of antiluetic treatment were given regardless of a number of negative Wassermanns on the blood and a normal spinal fluid.

Family History.—The mother and father are living and have never been subject to any neuromuscular disorders. There are living seven brothers and three sisters and no siblings dead. One sister, now 46, had some trouble with her gait and was said to be "nervous" beginning at the age of 10 and becoming slightly worse with advancing years. Another sister now 31 years old had trouble with her walking at 20 years of age. One leg swings and seems palsied. Both had definite tremors, the youngest more. The patient's wife is well and has given birth to four healthy, living children. Their first child had a "large head" and died during delivery. The second child, normal in every way, succumbed to a sudden acute illness.

Past History.—He had several "children's diseases" which left no serious sequelae. Syphilis and alcohol were denied. Neisserian infection occurred at the age of 17.

Examination.—The patient presents a striking cerebellar gait. He walks with a marked unsteadiness, staggering or titubation. It is necessary for him to use a cane. The patient has fallen on a number of occasions. About five months ago one of the falls produced a fracture of the right radius. He uses his upper extremities fairly well but with definite evidence of disturbance in coordination. His strength in the hands and arms has been reduced but slightly. For instance, five years ago dynamometer tests gave on the right side readings of 167, 162 and 146; and on the left 170, 142 and 162. He is right-handed. Quite recently the readings were, on the right 100, 118, 115, 118 and 110; and on the left 118, 124, 130, 124 and 128. The patient is slightly more unsteady on his feet with his eyes closed which might be interpreted as a mild Romberg sign. The deep reflexes are about equal in the upper extremities. The patellar reflexes are present but not too readily elicited, slightly brisker on the right. The Achilles were not obtained even by reinforcement. During the first few years I found them present. The reflex state has changed only a very little in nine years. The abdominals, cremasterics and other superficial reflexes are present. The Babinski and Oppenheim signs were negative. On a few occasions there has been a question as to neutrality or a positive toe extensor. Epicritic, protopathic and deep muscle sensory tests gave normal responses. The vibration sense in the lower extremities was considerably reduced.

There is a slight coarse tremor in the hands and in the head when turned to the extreme right or left. There is present a mild dysidiadochocinesia, left slightly more than the right. A little dysmetria is noted and may show errors of from three to eight centimeters, with the fingers. An atopognosis of about the same distance is noted. Synergic disturbances are in evi-

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dence. The pupils, circular, respond well to light and accommodation and are about equal. The disks show no swelling or optic atrophy. Vision is good for both eyes. The blood vessels appear to be normal. There is no true nystagmus but nystagmoid movements are noted when looking to the extreme right or left. His hearing is good. Writing is somewhat difficult and shows quite definitely the incoordination. A general, mild muscular rigidity is noted.

Speech is peculiar, having elements of slowness but no certain scanning characteristics. Enunciation is not clear at times. Possibly you may consider the facies as having a peculiar expression on account of the head posture and spasmodic action of facial, nuchal and head muscles. At no time has there been any evidence of mental impairment in this patient. He has held continuously for many years a responsible position requiring good, quick memory.

I have performed one lumbar puncture finding the spinal fluid with a normal cell count, globulin, pressure and a negative Wassermann. The blood serum complement fixation test for syphilis was negative.

The treatment during the last nine years, since the patient has been under my observation, has consisted chiefly of advice relative to conserving his muscular activities, administration of sodium cacodylate, strychnia and iron per os and intravenously. At no time has any definite antiluetic therapy been employed.

In a differential diagnosis many disorders might be considered. Foremost would be that of cerebrospinal syphilis and especially tabes. Against such a diagnosis are many and persistent negative Wassermanns and spinal fluid tests, covering a period of over twenty years. Many other important clinical manifestations are missing. Multiple sclerosis may be eliminated readily by the presence of the abdominal reflexes and the absence of a typical scanning speech and true nystagmus. Its course is decidedly different. Hereditary cerebellar ataxia is entitled to careful consideration, especially where the patient presents some impaired bone conduction, deep reflexes diminished and some family involvement. Against the Friedreich's type, we should bear in mind that it comes on before puberty, has early choreiform movements and especially being subject to foot deformities and scoliosis. Contrarily the Marie type has its onset after puberty, is subject to very pronounced choreiform movements, has pupillary signs, optic atrophy, amblyopia and commonly presents increased deep reflexes with foot clonus frequently. A hereditary spastic paraplegia, and any one of the myopathies or myelopathies, should require scant consideration for this kind of a syndrome. A cerebellar or posterior fossa tumor may be eliminated readily by several important symptoms being totally absent.

Thus we are left with a diagnosis of some kind of a systemic tract degenerative disorder involving a coordinating system. The syndrome fits with a hitherto described small group

of cases diagnosed as olivo-ponto-cerebellar atrophy, but not a pure type. The comparatively small number of cases that have been accurately described in the literature vary somewhat in their symptomatology. The clinical variations may depend upon the involvement of other neural centers and pathways to a lesser extent together with those of the inferior olivaries, cerebellar peduncles and cerebellar cortex. Lejonne and Lhermitte¹² describe a lone case in which there is an added involvement of the superior penduncles and nucleus ruber, named by them olivo-rubro-cerebellar atrophy. A few cases have been described with the typical pathology for this trouble, but with an added lesser involvement of several nuclei and pathways in the brain stem as well as some spinal cord columns. You may wish to classify Marie, Foix and Alajouanine's case, "atrophie cerebelleuse tardive," under olivo-ponto-cerebellar atrophy. I am fully cognizant that the tentative diagnosis which I have made may be attacked. I do feel quite positive that we are not dealing with either cerebrospinal syphilis or tabes. A possible disturbing factor in the positive diagnosis is the questionable family taint. Unfortunately I have never had the opportunity of seeing the two sisters who have had some chronic trouble involving the nervous system. Hoeneveld¹⁰ and Keiller¹¹ have recorded cases showing heredity, the former with one autopsy. Possibly you might wish to terminate the discussion with, "The autopsy will reveal."

CONCLUDING REMARKS

It is fairly well established that there is a definite neurological entity which may be called olivo-ponto-cerebellar atrophy. Some of the pure cases have their pathological changes quite well confined to the neocerebellum including middle and inferior cerebellar peduncles, inferior olivaries with their accessory ones, inter-olivary fibers, and arciform nuclei and fibers. The pathological changes involving pathways or nuclei are always very slowly progressive. There is never evidence of neuronophagia or inflammatory involvement of either brain substance or leptomeninges.

For the diagnosis our attention may be called to a typical group of clinical signs involving especially the cerebellar coordinating system with the lower extremities implicated much more than the upper. There is no loss of motor power nor impairment of the usual forms of sensation. In observing the gait of one of these patients, our first impression might be that the muscles are weak. Individual muscle tests demonstrate that there is no loss of muscle power excepting in late stages or with compli-

cations. The asynergia is usually striking and especially as evidenced by the patient being easily tumbled or pushed over. Dysmetria is readily demonstrated. The gait demonstrates well the marked titubation. In fact a number of writers liken the walk to that of a drunken man. There is a similarity, but it is different. The cerebellar gait is a striking one, somewhat difficult to describe accurately. Nevertheless experience teaches us to recognize it at once. The deep reflexes should be but little altered in uncomplicated cases, slightly increased in some. In a few they may be diminished or absent.

Alterations in speech come later, at times several years later. Such troubles suggest that the incoordination affects the muscles of speech. An incoordinate handwriting can be noted about the same time as that of the speech disturbance.

There should be no symptoms related to the eyes except in the later stages when some nystagmoid movements may be demonstrated. A few cases of nystagmus have been reported. The eyegrounds are normal.

The etiology is dark. Heredity has been demonstrated in not more than 20 per cent of the cases reported. Some have invoked Gower's theory of abiotrophy which was applied originally to some of the myopathies. There has also been a considerable amount of discussion and some contention as to the original site of the lesion. It seems most likely that the trouble originates primarily in the inferior and accessory olivaries, bilateral. Then we have slowly ascending degeneration of certain pathways to the cerebellum. Apparently it is a degenerative disorder of the neocerebellar system including the vermis and hemispheres. The pallidocerebellum, comprising especially the dentate nucleus and superior cerebellar peduncles, are intact or as in a few reported cases altered slightly. Studies of olivo-ponto-cerebellar atrophy have thrown some light on the physiology of the cerebellum and pons.

Your attention might be called to the splendid classification of André Thomas²⁰ on the primary atrophies of the cerebellum as follows:

- (1) Pure primary of the cerebellar cortex.
- (2) Olivo-ponto-cerebellar atrophies (Dejerine-Thomas).
 - (a) Atrophy of hemispheres greater than vermis. Gray nuclei relatively intact.
 - (b) Atrophy of white fibers, practically total of middle cerebellar peduncles and much of inferior cerebellar peduncles. The superior cerebellar peduncles and dentate nucleus are intact.

- (c) Pronounced atrophy of the olivaries and accessory ones, arciform nuclei, external arciform fibers and a portion of the restiform bodies.

(3) Olivo-rubro-cerebellar atrophy (Lejonne and Lhermitte).¹² There is an atrophy of the cerebellar cortex and dentate nucleus as well as olives.

(4) Olivo-cerebellar atrophy (Holmes).⁹ Lesions limited to the cerebellum including granular and molecular layers and especially the Purkinje cells and a severe involvement of the olives and accessory olives. Dentate nucleus and balance of pons are normal.

(5) Senile cerebellum.

(6) Hereditary cerebellar ataxia.

(a) Friedreich's type.

(b) Marie's type.

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THE PRODUCTION OF PROLONGED STIMULATION OF A SYMPATHETIC NERVE TRUNK; AFTER THE METHOD OF BURROWS

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During the last ten years or so an active interest has been taken in the autonomic nervous system. Knowledge of its physiology and anatomy has increased considerably and neurosurgery has kept pace with this increased knowledge. The anatomy of this system is complex but put very briefly we can say that it is divided into two apparently antagonistic sections. The parasympathetic portion is composed of the third, seventh, ninth and tenth cranial and the second, third and fourth sacral nerves. The fibers of these nerves pass directly to ganglia in or very near the organ which they supply and short postganglionic fibers then continue to supply the part. The parasympathetic nerves cause relaxation of the walls of blood vessels, they initiate peristalsis in the musculature of the intestinal wall and bladder and cause relaxation of the sphincters.

The sympathetic system arises from the thoracic and first, second and third lumbar spinal nerves. Short preganglionic fibers pass to the sympathetic chain on each side of the vertebral column or to the prevertebral ganglia which lie anterior to the vertebrae. From these ganglia long postganglionic fibers then supply the organ. The sympathetic system is responsible for constriction of blood vessels, relaxation of the intestinal walls and contraction of the sphincters. They also activate the sweat glands and erector pili of the skin.

History.—It is now thirty-seven years since Jaboulay began to do a periarterial sympathectomy for trophic ulcers of the leg. During the World War, Lehrich¹ began to use this same procedure on cases of causalgia, which condition Weir Mitchell had described in 1864 during the Civil War. The reason for the numerous failures which followed Lehrich's operation had been explained in 1914 by Kra-



Fig. 1. Dog No. 3. Preliminary roentgen ray of normal colon.

mer and Todd,² and verified since then by numerous others. They had shown that the nerve supply of the blood vessels does not run along the whole length of the vessel but reaches it at different levels, so that stripping the femoral artery does not free the foot of its nerve supply. Numerous theories have been proposed for the occasional good results and the temporary vasodilation which usually follow this operation.

In 1924, Hunter³ and Royle⁴ noticed that some patients upon whom they had done a lumbar sympathectomy for spastic paralysis became relieved of their constipation after the operation. In 1927 Wade and Royle⁵ advocated the removal of the hypogastric nerve for megacolon. Since then operations on the sympathetic nervous system have been done with great enthusiasm for a variety of conditions which fall roughly into three major groups; viz.:

1. In the group of vascular disturbances, Raynaud's disease, which is caused purely by vasoconstriction, is the one condition most frequently and successfully relieved by a sympa-



Fig. 2. Dog No. 3. Postoperative roentgen ray following the injection of carborundum around the inferior mesenteric ganglion. The colon is somewhat dilated.



Fig. 3. Dog No. 20. Preliminary roentgen ray. Normal colon.

thectomy. Buerger's disease and arteriosclerotic arteries usually have some pathology in the wall by the time they are operated upon and so do not receive as much benefit as the ones whose walls are normal. The cold and cyanotic extremities which sometimes occur after poliomyelitis are also relieved by a sympathectomy.

2. In the pain group, sympathectomy is usually successful for causalgia, neuralgia in amputation stumps, for the pain of tuberculous or cancerous bladders and sometimes for dysmenorrhea. There is a rapidly growing number of successful operations for angina pectoris being reported in the literature.⁶ The operation for rheumatism, advocated by Rowntree and Adson⁷ has been disappointing. Although a few brilliant results have been obtained, the majority of patients have received little or no relief and the operation has been practically dropped until further study shows us how to select our cases.



Fig. 4. Dog No. 20. Postoperative roentgen ray following division of the lumbo-colonic and hypogastric nerves. The colon appears to be more active, numerous peristaltic waves may be seen. The number of bowel movements however did not increase.

3. Disturbances of motor function include cord bladder for which the hypogastric nerve is removed,⁸ cardiospasm for which Knight⁹ removes the esophageal nerve which arises from the celiac ganglion, and megacolon for which the hypogastric nerve and the inferior mesenteric ganglion are excised. It is important, as Coughlin has so often pointed out, that both the hypogastric nerve which supplies the lower colon and the inferior mesenteric ganglion which supplies the proximal portion be removed in these cases.

Hyperdydrosis, or excessive sweating of the hands or feet, is another very disagreeable condition for which the operation of sympathectomy is almost a specific.

This list then includes those conditions for which one can look to surgery for relief in a fairly large percentage of cases, even though the oldest of these operations is still in an early stage of its development. Because surgery of the sympathetic nervous system is still in its infancy there must of necessity be further study and research before we can feel confident enough to recommend these procedures in early cases. For this reason I feel justified in reporting this experiment in the hope that this method of nerve stimulation may be of some benefit in future investigations.

In 1934, Burrows¹⁰ injected powdered silica into the mesentery of rats hoping to produce a cancer of the gut. Instead, however, of producing cancer this foreign body irritated and stimulated the sympathetic supply of the colon to such an extent that it dilated into a severe megacolon. This method was used by us in our studies of the sympathetic supply of the colon, in addition to the usual methods of cutting nerves and of stimulating them by electricity. Out of a series of eight dogs upon which this method was used I shall report only one of them as the results with this dog were typical of all the others.

EXPERIMENT

Dog No. 3. Several roentgen rays of the normal colon were taken before the operation for purposes of comparison. On November 12, 1935, the dog was prepared for operation and under ether anesthesia the abdomen was opened in the midline. The colon was drawn to one side so as to expose the inferior mesenteric ganglion which lies near the root of the inferior mesenteric artery. A suspension of finely divided carborundum in gum acacia and water was then injected through a blunt silver needle between the layers of the mesentery so as to surround the ganglion. If the needle is inserted at a distance from the ganglion and worked carefully around each side of the gan-

gion so as to free it from the two layers of mesentery a large quantity of the carborundum can be injected without leakage. When the ganglion was well surrounded with carborundum the abdomen was closed and the dog put back in a warm kennel to recover from the anesthetic. Within the next few days it became very evident that the dog was constipated and for the next ten days the dog did not have a normal bowel movement. At times it was able to pass a few hard dry feces but these were very few. The dog lost some weight, its appetite was fair and it did not seem to be very greatly inconvenienced by the degree of constipation present. At the end of ten days the bowel movements began to appear more frequently and the dog made a rapid recovery and was normal again in two weeks.

Roentgen rays of the colon taken after the operation showed a moderate dilatation present a few days after the injection of the carborundum. This lasted until the tenth day when the size of the colon returned rapidly to normal coincident with the return of normal bowel function.

COMMENT

The production of chronic stimulation of a nerve over a period of ten days or more by the use of a nonabsorbable foreign body irritant is apparently a new method. The irritation continued in our dogs for at least ten days, and apparently it lasts until connective tissue has formed a protective layer around the sharp pointed particles of carborundum or silica or whatever is used to cause the irritation. This lasts long enough to produce a megacolon in rats and a very severe constipation in dogs. The method should prove to be of advantage in the study of the nerve supply of other regions of the body where a prolonged stimulation is required.

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DISCUSSION

DR. WM. T. COUGHLIN, St. Louis: I think the surgery of the sympathetic nervous system is just in its infancy. A lot of things are always overstated when we begin to do some new procedure, and we have to tone them down considerably. You heard Dr. Bransford Lewis this morning tell you what they passed through in regard to kidney fixation. Of course, if you remember just a few years back you will recall that the same thing was said about ovariectomy and appendectomy that has been said about fixation of the kidney, and we are going through exactly the same thing now about cholecystectomy. We have to stand a lot of criticism and to make apologies sometimes because a thing does not turn out the way we thought it was going to, and the reason is we do not know enough. I often think that when we know as much as we ought to know the people will never die at all; they will have no excuse for dying when we know everything.

So it is now with regard to this operation of sympathectomy, and there is a lot of operating being done on the sympathetic nervous system. Dr. Deaver used to say that as soon as a disease becomes surgical we begin to learn something about it. You know there is a lot to that. We begin to see conditions in vivo, we begin to deal with living patients and we pay more attention when they die than we do when they live.

Sympathectomy came over this country like wildfire in 1924. Sympathectomy for the cure of arthritis! If you remember, how wonderful it seemed that we could offer something so simple for the cure of such a disease! We did not know arthritis existed as it does until we began to do the operation of sympathectomy. We saw them carried in in all stages from the beginning to absolute fixation of the body into one solid piece, coming for relief by this wonderful operation that was heralded with so much éclat from certain centers. "By their fruits ye shall know them." After ten or twelve years' trial, honestly are there many surgeons doing sympathectomy for arthritis?

The first six months after I began to do sympathectomies for arthritis the follow-up results were wonderful, they all loved it; every letter coming back told me how wonderful it was, how I had relieved them of their symptoms; and in another six months the good results were not so good; and in another six months still fewer good ones until after three years, when I made my report before the St. Louis Medical Society, I had some letters that said, "If I had never had the operation I would not be as bad as I am now." That makes one stop and think.

Are there many doing sympathectomy for goiter? Away back in the early '90's it was heralded as an operation for goiter, a cure-all, particularly for exophthalmic goiter, and I sat in at some of those meetings and listened to its thundering advocates. But now we just do not do it. That is enough said. The reason is plain.

I am frequently called upon to do a sympathectomy and sometimes I really believe that I do the patient some good by a sympathectomy, particularly if it is a sympathectomy done for relief of certain conditions in the lower extremities. Take a patient who has cramps in his legs. Perhaps he has beginning arteriosclerosis. When he gets to be a man as old as I am you sort of expect that, and you had better bear in mind that this is something for which a sympathectomy cannot do

much. But the young man who comes with cramps in his legs, with pains in his feet and the color shows he has either beginning Buerger's disease or Raynaud's disease—something wrong with the sympathetic balance—a sympathectomy will do much for these. There are the patients who are afflicted with terrific sweating of the feet or suffering from cold feet. Something can be done for these. For Raynaud's disease in the hands of young women we can offer a good deal of amelioration, but we cannot promise a complete cure even though we remove the sympathetic ganglia from the first cervical clear down to the diaphragm. The lumbar sympathetic ganglionectomy shows far better results than an operation done on the cervical, whether for Raynaud's disease, for Buerger's disease, for sweating hands or feet or for cold feet or cold hands. Sometimes I have done a lumbar sympathectomy for some other cause and given some relief to constipation, but that has not always happened by any means. The same surprise has occurred with regard to nocturnal frequency of urination. But not in all instances. I do not know beforehand whether a patient will be relieved of his constipation or of urinary difficulty.

If we cut the sympathetic nerve (hypogastric nerves) that supply the rectum, bladder, uterus and ovaries, sometimes the results are marvelous, but we cannot assure the patient beforehand that relief will ensue no matter what the complaint. Some are benefited permanently and some are benefited for a little while, and then (almost) "all is as it was before."

The essayist has shown that stimulation applied to the sympathetic nervous system has been sufficient to cause laziness of the colon. If he has proved to you that this stimulation is sufficient to cause dilatation of the colon, then it does seem that division of these same nerves would be sufficient to cause activity on the part of the same colon; but I must repeat that not alone are rectum and lower sigmoid at fault in constipation or megacolon and that only rectum and lower sigmoid are governed by these nerves. The whole nerve supply must be acted upon if we wish to influence the action of the whole bowel.

EFFECT OF INJECTION OF BACTERIAL FILTRATE ON BROWN-PEARCE RABBIT EPITHELIOMA

W. T. Pommerenke, Rochester, N. Y. (Journal A. M. A., May 9, 1936), points out that the employment of bacteria or their products in the treatment of malignant disease is not new. Because of obvious restrictions incidental to the use of human material, he made a study on animals, in the hope of gaining accurate experimental information on the mode of action and on the effects of similar bacterial filtrates. The Brown-Pearce rabbit epithelioma of the testicle was used in these experiments. Its genealogy and biologic behavior are well known. It is a highly malignant animal tumor which, unchecked, runs a rapidly fatal course in a large proportion of cases. The sterile filtrate of *Bacillus histolyticus* growing on the Brown-Pearce rabbit epithelioma was injected under a variety of experimental conditions into rabbits having the same type of tumor from which the filtrate was prepared. Injections of this filtrate were found to have no apparent effect on the rate of growth of the tumor or on the microscopic appearance of the tissue. Even when the tumor was propagated through two generations of hosts, both of which had received injections of the bacterial filtrate before and after inoculation with the tumor, its highly malignant potentialities were not checked.

PROBLEMS OF THE FEMALE URETHRA

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The female urethra offers many interesting problems to the general practitioner as well as to the urologist.

The most common pathological conditions of the urethra are urethritis, stricture, polyp, caruncle, cyst, contracture of the vesical neck, primary neoplasm, diverticulum, prolapse and impacted calculus.

URETHRITIS

From an etiological standpoint urethritis is divided into two types: (1) A specific type which is caused by the gonococcus, and (2) a nonspecific type which may be the result of contamination from the vagina, vulva or rectum; from previous gonococci infections or from one of the numerous foci of infections, such as infected teeth, tonsils or sinuses.

The symptoms most frequently complained of in both types are painful and frequent urination, urgency, nocturia and occasionally hematuria. At times pain is referred to the inguinal region, suprapubic area, abdomen, kidneys, thighs and vulva.

During the acute stage of gonococcus urethritis the mucosa of the external meatus becomes everted and inflamed. Pus exudes from the urethra and may be expressed from the openings of Skene's glands situated on the floor of the urethra just inside of the external orifice. It must be kept in mind that infection of Skene's glands is a common cause of persistent urethritis. When such infection is present it is only by the elimination of these foci that the urethritis can be cured.

In the acute form of nonspecific urethritis pus may be expressed from the urethra, while in the chronic form urethral discharge is seldom observed and the catheterized urine specimen is usually negative. Folsom,¹ who has so thoroughly investigated the female urethra, has shown that chronic nonspecific urethritis is often the result of infection in the periurethral glands which surround the posterior portion of the canal.

Endoscopic examination in chronic nonspecific urethritis may reveal a granular appearance of the urethra and polypoid tabs may be observed arising from the mucosa on the proximal half. Small cysts are sometimes seen in this region as well as punctated red areas extending over the internal sphincter and on to the trigone.

¹Read at the 79th Annual Meeting of the Missouri State Medical Association, Columbia, April 13-15, 1936.

Recently, Beach² has described a type of non-specific urethritis which he calls "erotic" urethritis which is present in women with unrequited genital turgescence and characterized by a swollen, red and hypersensitive urethra. The urine is generally sterile in these cases.

Briefly, the treatment of acute gonococcus urethritis is proper elimination, ample fluids, hot douches, urethral instillations of mild silver salts and the oral administration of urinary antiseptics. Before the urethra is pronounced negative it should be repeatedly stripped to make certain that there is no urethral discharge and a 24 F and 26 F sound should be passed to eliminate the possibility of urethral strictures. In cases of chronic infection of Skene's glands extirpation of the gland with bipolar current is considered by the writer the treatment of choice. A diet, which eliminates alcohol, condiments and those foods known to be offenders, is essential.

The treatment of acute nonspecific urethritis is essentially the same as that of acute gonococcus urethritis. The best results have been obtained in the treatment of chronic nonspecific urethritis by dilatation of the urethra with a 24 F and 26 F sound and, when indicated, dilatations with a Kollman dilator up to from 40 F to 42 F; irrigation of the bladder with a mild silver salt solution and urethral instillations of $\frac{1}{2}$ per cent to 1 per cent silver nitrate. Occasionally direct application through the endo-

scope of a stronger solution of silver nitrate is essential. Fulguration of the urethra and trigone through the endoscope may be necessary to bring about symptomatic relief. Such general therapeutic measures as ample fluids, good elimination, freedom from physical and mental strain and a bland diet should be instituted. Mild sedatives are used to advantage for nervous patients.

STRICTURE

The etiological factors responsible for stricture of the female urethra are: (1) Trauma as the result of childbirth or cauterization of urethral growths, (2) inflammation, (3) congenital.

Frequent, painful and difficult urination are the most common symptoms while nocturia, hematuria, retention and dribbling are sometimes present. Thomsen (quoted by Stevens³) has shown that there is a physiological narrowing of the lumen just above the midportion of the urethra where it passes through the urogenital diaphragm which should not be mistaken for a stricture. Stevens³ states that a majority of the urethral strictures are located at the external meatus.

Diagnosis is usually made by instrumentation and the olive tipped bougie is the best instrument for calibration. Opinions differ as to the normal caliber of the adult female urethra. Stevens gives 26 F as the average size. When the meatus is abnormally small diagnosis can be made by inspection. Urethritis, trigonitis, cystitis and pyelitis are frequently associated with urethral stricture as well as regurgitation renal colic as described by Lewis.⁴ The treatment consists in dilatation of the urethra, under local anesthesia, every three to six days. Meatotomy is often a time saving procedure for those strictures located at the external meatus.

CASE REPORT

I wish at this time to present an unusual case of filiform stricture of the female urethra with associated contracture of the vesical neck and small uretero-vesical orifices. This patient, seen in August, 1934, complained of frequency, vomiting and pain over the left kidney. Examination revealed a greatly distended bladder from which 870 cc. of urine was withdrawn with a number five F. ureteral catheter and the urethra dilated to an 18 F. Subsequent cystoscopic examination showed the bladder neck was edematous and had an irregular appearance. Bilateral ureterograms showed the ureters were dilated above the uretero-vesical orifices, and there was evidence of back pressure in both kidney pelves. There was a marked angulation of the right ureter and one of lesser degree of the left ureter. A cystogram revealed no regurgitation up the ureters. The blood and spinal fluid Wassermann were negative. For a period of several months thereafter the patient had a residual urine varying from 225 cc. to 400 cc., although her urethra was dilated up to a 42 F on numerous occa-



Fig. 1. Pyelogram made in November, 1934, previous to fulguration of bladder neck and incision of both uretero-vesical orifices. Patient is in horizontal position. Note dilatation of the pelves and ureters and angulation of right ureter.

sions. During this period the patient had chills, fever, nausea and vomiting unless a retention catheter was anchored in the urethra. As she had not responded to urethral dilatations it was decided to fulgurate the bladder neck and incise both uretero-vesical orifices. As soon as the irritation subsided from this manipulation, the residual urine dropped to from 10 cc. to 20 cc. and all systemic symptoms disappeared. A recheck was made on this patient four weeks ago and the residual urine was found to be 15 cc. The ureters and kidney pelvis were normal and a cystogram showed no regurgitation up either ureter. The general health was greatly improved as was manifested by a gain in weight of 33 pounds.

POLYPS

Urethral polyps are most frequently the result of chronic urethritis. They are small, finger-like projections from the surface of the mucosa and may appear any place along the course of the urethra but more often are found along the proximal third and about the internal sphincter. Polyps may exist without causing any symptoms; on the other hand, they may be responsible for painful and frequent urination and occasional hematuria. Diagnosis is made by endoscopic examination. The treatment consists of destroying the growths by fulguration through the endoscope.

CARUNCLES

Caruncles are generally the product of repeated trauma or infection of the urethral mucous membrane and are situated at or just inside the external meatus. Due to small urethral orifices, caruncles sometimes exist for an indefinite period without being discovered. They are very sensitive to any irritation and are often the cause of many urinary symptoms. Many authorities consider caruncles potentially malignant. The treatment of choice today is ful-

guration, although surgery is sometimes employed. Recurrence is common unless the base is thoroughly destroyed.

CYSTS

Cysts are found after inflammatory occlusion of urethral glands. Any of the various urinary symptoms may be present. Again, the diagnosis is made by urethroscopy and the treatment is fulguration through the endoscope.

CONTRACTURE OF THE VESICAL NECK

Contracture of the vesical neck in the female has been thoroughly brought to the attention of the medical profession by Caulk.⁵ He points out that these cases are the result of an inflammation of the urethra and that the pathological specimens in the majority of instances show a dense fibrosis. The principal symptoms are frequent and painful urination, difficulty in passing the stream, incontinence, hematuria and regurgitant renal colic. The greater number of these patients have a residual urine. The treatment of this condition is the relief of the vesical neck obstruction which may be accomplished by dilatations of the urethra or removal of tissue from the vesical orifice.

PRIMARY NEOPLASMS OF THE URETHRA

The etiology or carcinoma of the urethra is not known. Infection, trauma and chronic irritation are considered predisposing factors. The urethral caruncle as a causative agent is still debatable. Menville⁶ states that the average age, in the 109 reported cases, is 53.4 years. Carcinoma of the urethra is most often located in the anterior portion originating from the mucosa near the external meatus or from the



Fig. 2. Ureterogram made at the same time as figure 1, with patient in the semi-erect position. Note the dilatation of both ureters and angulation now present in left ureter.



Fig. 3. Pyelo-ureterogram made in March, 1936, fifteen months after fulguration of the bladder neck and incision of both ureterovesical orifices. Patient is in the semi-erect position. The pelvis and ureters are normal and the ureteral angulations have disappeared.

paraurethral glands or their ducts. However, it may occur in any part of the entire urethra. There are no characteristic early symptoms or signs of carcinoma of the urethra and the majority of those patients suffering from this condition are in the late stages of the disease when first seen by a physician. Difficult urination, dysuria, frequency and hematuria may be present, but not early enough to be of material benefit. Diagnosis is made by biopsy and microscopic examination. Radical extirpation of the growth and resection of the inguinal glands, when involved, is the prescribed treatment to-day. The use of radium in primary carcinoma of the urethra is not advised by Dean (quoted by Menville⁶) for the lesions are radio resistant and the dosage required produces destruction of surrounding tissue and fibrosis. He does, however, advise small doses of radium in the advanced cases as a palliative measure. In his opinion, roentgen ray irradiation is useless for the inguinal glands.

DIVERTICULA OF THE FEMALE URETHRA

There are different opinions as to the etiology of diverticula of the female urethra. Earlham⁷ believes that congenital structural weakness is the principal etiological factor, while McNally⁸ and others feel that the greater number are acquired either as a result of trauma, especially that due to difficult labor, or from abscess cavities which have drained into the urethra and failed later to become obliterated. The symptoms usually complained of are burning on urination, frequency and nocturia. If the diverticulum is large enough the swelling may be noticed by the patient. The diagnosis is made by endoscopic examination at which time the orifice can be observed and, if desired, the diverticulum can be injected with a radio opaque solution and a urogram made. The treatment for such cases is resection.

PROLAPSE OF THE URETHRA

Prolapse of the urethra may be partial or complete and is caused by a redundancy of mucosa which protrudes through the external meatus. Frequency, painful urination and hematuria may be present. Ormond⁹ reports one case in 195,000 patients. Excision of the excess mucous membrane is the treatment advocated.

IMPACTED URETHRAL CALCULUS

Calculi become impacted when their passage through the urethra becomes arrested. Most of these calculi come from the bladder, but small ones may originate in urethral diverticula. Frequency, urgency, hematuria and painful urination are often present as well as acute retention and dribbling. The treatment consists

in removal of the calculus by instrumental manipulation.

CONCLUSION

In conclusion, let it be emphasized that symptoms involving the female urethra should be given careful consideration. Failure of the patient to respond to the ordinary treatment is indication for a thorough urological examination during which the underlying cause can usually be isolated and appropriate treatment instituted.

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A TEN YEAR MORTALITY STUDY IN TOXIC GOITER

WILLARD BARTLETT, JR., M.D.

ST. LOUIS

In 1930 the author summarized the records of all our toxic goiter patients dying in hospital during the five year period, 1926 to 1930 inclusive. In accordance with the lessons learned from the study, a plan was developed for consideration of each thyrotoxic patient according to all the following primary criteria, arranged roughly according to their importance. The extreme of physiologic derangement judged by any one of these criteria constitutes an absolute contraindication to operation at the time. These primary criteria¹ and their corresponding absolute contraindications are:

1. Circulation (congestive failure).
2. Nervous stability (acute thyrotoxic psychosis).
3. Nutrition (rapid, continued loss of weight).
4. Excretion (diarrhea, vomiting, sweating).
5. Basal metabolism (rising).
6. Ability to hold the breath (author's test).²

Failure of sufficiently exact estimation of the ability of the thyrotoxic patient to withstand the

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contemplated operation is implied in practically every postoperative death. The truth of this assertion is borne out in the appended study of the deaths following operation during the five year period 1931 to 1935, inclusive, subsequent to our adoption of this viewpoint. We are satisfied of the almost mathematical accuracy with which the ability of the patient to withstand operation at any given time can be foretold; that we have disregarded one or more of our own absolute contraindications to operation is borne out graphically in the present study. There is no method of taking stock so useful to the surgeon as the study of his postoperative deaths and an evaluation of the factors discernible in the preoperative course of the patient which made him virtually an impossible risk and which, therefore, should have led to postponement of the operation to a more suitable time. These remarks apply with more force to the operative treatment of toxic goiter than to any other field of surgery, perhaps. The figures of this study are given for the two successive five year periods under consideration in order that we may make a comparison between the respective results.

Table 1. Total Hospital Deaths

	1926-1930	1931-1935
Preoperative	15, 40%	11, 65%
Postoperative	23, 60%	6, 35%
Total	38, 100%	17, 100%

We were surprised to find that 40 per cent of our total goiter deaths in the first period occurred before the patient could be prepared for operation, but with the development of our conviction that by a detailed, complete study of each case in which the requirements for operability were rigid, rather than being highly flexible, we came to the belief that there should be, ideally, no postoperative deaths in thyrotoxic crisis and that we should expect to see a pronounced shift in the ratio between preoperative and postoperative deaths in the subsequent five year period. That our assumptions were correct is shown by the reversal of this ratio in the second period. These figures show, moreover, in relation to the total number of operations performed in each period, the relative severity of the disease in the patients who come to us for operation. It is easy to elaborate on the factors which cause a variation in the severity of the average clinical picture that presents itself to any individual in practice; that there will be a considerable variation in the material coming to different surgeons is not unnatural. That the risk of operation has been estimated with greatly increased accuracy in the second period of study should be clear.

PREOPERATIVE DEATHS 1931-1935, INCLUSIVE

A study of the eleven deaths occurring before operation from 1931 to 1935 reveals that one died quite suddenly of suffocation; of the remaining ten, five died of congestive heart failure within a few hours of admission to the hospital failing to respond to the usual treatment with massive dosage of digitalis preparations, salyrgan and concentrated glucose solution intravenously; the remaining five patients died in typical thyroid crisis with complicating heart failure in only one case. It should be emphasized that these preoperative deaths occurred in the hospital usually within one or two days of admission, and they do not in any sense represent a refusal to take a reasonable risk of operation. Patients varied in age from 23 to 63 years, their average age being 47 years, whereas the age of all toxic goiter patients was 35 years. Where it was possible to get a history from the patient or his attendants the presence of goiter had been recognized usually for more than thirteen years, and the duration of thyrotoxic symptoms was usually of more than one year. Extreme loss of weight, amounting to as much as 50 per cent of average body weight, was present in the overwhelming majority of these cases. In the four patients on whom basal metabolism was estimated, the results varied between +44 and +100. It is interesting to note that of the ten purely thyrotoxic deaths, three were associated with intercurrent infection precipitating crisis.

Table 2. Operations Resulting in Death

	1926-1930	1931-1935
Subtotal (one-stage)	14, 61%	3, 50%
First stage lobectomy	3, 13%	3, 50%
Second stage lobectomy	3, 13%	0, 0
Ligation of pole	3, 13%	0, 0%
Total	23, 100%	6, 100%

It is noteworthy that in the second period no death followed the second stage of a two-stage operation, for we have learned that such handicapped patients may recover very slowly following first lobectomy. Patients under 50 years of age usually have the second stage performed at the same hospitalization, whereas those over 50 do not "come back" within a reasonable period of time and are more safely dealt with by an interval of two or three months at home between stages. We have not done ligation of the superior poles since 1931 since we no longer regard it as having therapeutic value.

One sees that we went from 1927 to 1934 without having a death associated with nerve injury, and we are satisfied that an early tracheotomy might have saved this last patient who was only mildly thyrotoxic but who had a

Table 3. Nature of Postoperative Deaths

	1926-1930	1931-1935
Pure (?) crisis	8, 35%	3, 50%
Crisis ± complications	8, 35%	1, 17%
Nerve injury ('26, '27)	2	1
Hemorrhage ('26, '29)	2	0
Drugs	3	1
Abortion	1	
Shock	4, 17%	0
Embolus	1	
Septicemia	1	
Congestive failure	3, 13%	
	23, 100%	6, 100%

complicating hypertensive heart disease; she survived forty hours.

Space does not permit extended description of the individual postoperative deaths. Suffice it to say that the three patients who are listed above as dying in pure thyrotoxic crises from 1931 to 1935 give unmistakable evidence in their preoperative course that they were unsuitable for operation. We violated our own absolute contraindications in respect to loss of weight under observation in all three cases; in two cases the basal metabolism did not fall under observation; two could not hold their breath satisfactorily; their loss of weight previous to admission to the hospital had been 38 per cent, 42 per cent and 22 per cent. They were treated for periods of sixty, twenty and eleven days respectively; each had only the first stage of a two-stage operation performed, yet none survived thirty-two hours. The death of the fourth patient was precipitated immediately by the only fatal reaction subsequent to blood transfusion in the experience of the attending physicians; the transfusion was given as a precautionary measure in the course of a moderate postoperative thyroid reaction. The fifth patient, who was only mildly thyrotoxic, died apparently of central respiratory paralysis due to an idiosyncrasy to drugs, although she had been tested for such an idiosyncrasy before operation. The sixth death, as mentioned above, occurred in association with bilateral recurrent nerve injury.

Table 4. Mortality

	1926-1930	1931-1935
Operations	737	374
Postoperative deaths	23	6
Mortality	3.3%	1.6%
PREOPERATIVE MORTALITY IN RELATION TO OPERATIONS		
Preoperative deaths	15	11
"Mortality"	2%	3%

It is noteworthy that the total number of operations performed during the second period was approximately half that of the first. Each surgeon can account to his own satisfaction in a variety of ways for an increase or decrease in the number of operations of any particular nature. The second period includes the most serious years of the economic depression and

this undoubtedly has some bearing on the situation.³ The increase in the number of surgeons trained to do more than adequate goiter surgery in recent years is very probably reflected in the smaller numbers of such patients presenting themselves in most of the centers which have been more or less prominently associated with thyroid surgery in the past. On the other hand, there has seemed to be an increasing willingness on the part of some practitioners to assume the risk of operating for toxic goiter as well as for other surgical conditions when they did not formerly care to assume these various surgical responsibilities. Finally, there is considerable reason for thinking that goiter in all its forms is decreasing due to an increasing understanding of its prevention, particularly during the early years of life. That the patients whom we see have a more severe form of the disease would seem to be indicated by our figures, although we do not regard them as being absolutely conclusive.

The fact that we cut our operative mortality in half in the second five year period is of course a source of gratification, but this feeling is tinged with dissatisfaction over those few deaths which our own study would indicate were predictable.

Table 5. 48 Cases With Hypertension

A.	30 without congestive failure.	
	26 operated; 1 death; mortality	3.8%
	38 operations done; mortality	2.6%
B.	18 cases with congestive failure.	
	5 preoperative deaths (28%)	
	13 operated; 1 death; mortality	7.7%
	21 operations done; mortality	4.8%
SUMMARY		
	39 cases operated; 2 deaths; mortality	5.1%
	59 operations; mortality	3.4%

The seriousness of the disease in the group of patients coming to us for relief of hyperthyroidism is well reflected in the above tabulation of forty-eight cases of thyrotoxicosis complicated by hypertensive heart disease in the years 1931 to 1935. Our postoperative mortality of 3.4 per cent for this group is almost exactly the mortality for all thyrotoxic patients from 1926 to 1930, and it will be seen that the operations for this complicated situation constitute 16 per cent of all the operations performed from 1931 to 1935. The only death in the hypertensive group in which congestive heart failure was not associated occurred in the patient previously mentioned who suffered a bilateral nerve injury. The only operative death in the group of patients admitted with congestive heart failure has also been mentioned as having remained so persistently thyrotoxic after sixty days of preparatory treatment, during which she was admitted four times to the hospital and went through an episode of

splenic infarction and another episode of furunculosis on the anterior aspect of the neck; her compensation was readily restored and maintained, but her basal metabolism stayed persistently above +50 and in the ten days preceding operation she lost six pounds. Death in thyroid crisis occurred in thirty-two hours following single lobectomy.

The mortality figures for this group of toxic goiter patients, whose illness complicates an independent circulatory disease, compare favorably with those reported in the surgical literature and we are satisfied that in no other aspect of the surgical treatment of goiter is more exact thinking required in the estimation of operative risk.

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EYE CHANGES IN HYPERTENSIVE TOXEMIA OF PREGNANCY

During the last three years Alton V. Hallum, Atlanta, Ga. (*Journal A. M. A.*, May 9, 1936), made records of the fundus oculi of all Negro, obstetric patients whose systolic blood pressure exceeded 140 or whose diastolic blood pressure exceeded 90. This study was undertaken with the hope of possibly correlating the retinal picture with the degree of clinical toxemia. When the patients were classified according to the severity of the hypertension the most striking increase in the frequency of eye changes was found on passing from class 1 to class 2 hypertension. Eye changes occur in 40.8 per cent of class 1, in 84.5 per cent of class 2 and in 98 per cent of class 3. When the patients were studied grouped according to the type of toxemia it was found that there was some ocular fundus change in 62.1 per cent (retinitis in 9.5 per cent) of the pre-eclamptic patients, in 84 per cent (retinitis in 11.6 per cent) of the nephritic patients and in 95.2 per cent (retinitis in 45.0 per cent) of the eclamptic patients. In this series of 300 patients 76.3 per cent showed abnormalities of the fundus oculi. The changes were classed as only arterial in 62.5 per cent and as retinitis in 13.2 per cent. The average age of the 300 patients was 25.3 years, whereas those who showed pathologic conditions averaged 26.2 years and those without such conditions averaged 21.8 years. The maternal mortality in this series of 300 patients was two, or 0.07 per cent. Both patients were primiparas and both were eclamptic. Retinal detachment is an infrequent complication in toxemias of pregnancy. In six cases, or 2 per cent, of this series bilateral detachment developed before delivery. Generalized narrowing and localized spastic constriction of the retinal arterioles are the earliest changes in the fundus oculi; retinal edema, hemorrhages and exudates appear later if the toxemia progresses in severity. When hypertension develops or increases during pregnancy, careful watch should be kept for angiospastic lesions of the retinal arterioles. Pregnancy should be terminated if the progress of these lesions cannot be controlled by conservative measures, and certainly before the onset of retinitis. The ar-

terioles may regain their normal caliber if there is a sufficient early reduction of the blood pressure to normal. The frequency and degree of lesions of the fundus oculi closely follow the severity of the hypertension. If retinitis occurs before the twenty-eighth week of pregnancy there is only about a 25 per cent chance of the patient giving birth to a living baby, even if pregnancy is continued to the stage of viability, and there is almost 100 per cent chance of permanent vascular-renal injury developing. If toxemia precedes the twenty-eighth week of pregnancy and is not accompanied by retinitis, the prognosis is slightly better. A previous hypertensive toxemia of pregnancy contraindicates a future pregnancy.

ARTIFICIAL FEVER IN TREATMENT OF GONORRHEAL OPHTHALMIA

As fever treatment of gonorrheal infections in various parts of the body is beneficial and as the lethal death time of *Neisseria gonorrhoeae* at 41.5 C. (106.7 F.) varies between six and twenty-four hours, W. T. Hasler, Jr., and Louis Speker, Durham, N. C. (*Journal A. M. A.*, July 11, 1936), treated six cases of gonorrheal ophthalmia with radiant energy. Treatments for five hours at 41.5 C. or lower (never higher) may be given instead of the twelve hourly period, which requires two or three shifts of nurses. However, more treatments will be required. During the first two or three hours of fever the conjunctival discharge diminishes rapidly in amount and the edema becomes less, allowing the irrigating solution to reach all parts of the conjunctiva. Toward the end of the treatment the changes have progressed, so that the cornea, which perhaps could not be seen well before treatment, because of chemosis, now can be more clearly observed. Irrigations may be continued with ease for the next few days. Gonococci, which still may be present, seem to be less resistant to antiseptics. Though irrigations may not be necessary, it is wiser to carry them out at intervals of four hours. If the infection is not eradicated by the first treatment, the inflammatory process may recur in two or three days, when a second treatment should be given. Of the six patients having gonorrheal ophthalmia the organisms disappeared after one or two treatments in five. In the sixth the gonococci disappeared one week following the second treatment.

THE PROBLEM OF CANCER OF THE PANCREAS

Howard M. Clute, Boston (*Journal A. M. A.*, July 11, 1936), presents a review from the literature and from personal experience of the symptomatology, and especially the early symptomatology, of cancer of the pancreas, and discusses the problems that are involved in the surgical attack on this lesion. He hopes that, by directing the attention of the present group of surgeons to the problem of cancer of the pancreas, further progress in the management of this disease will be made. Surprisingly few reports are to be found in the literature of successful removal of malignant tumors of the body or tail of the pancreas in the hundred years since Mondière first described cancer of the pancreas. Recent interest in the surgical treatment of pancreatic tumors has been so stimulated by the results obtained by resection of the pancreas or of islet tumors for hyperinsulinism that an increase in the number of pancreatic cancers attacked surgically may be anticipated. Wider study of the early symptoms of pancreatic cancer will give increasing opportunity for the application of surgical and radiologic measures to the pancreas.

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AUGUST, 1936

EDITORIALS

DR. W. McKIM MARRIOTT

On July 1, 1936, Dr. W. McKim Marriott resigned as Dean of Washington University Medical School, Professor of Pediatrics, and Physician-in-Chief of the St. Louis Children's Hospital to become Dean of the Medical School and Director of Medical Research at the University of California. The departure from St. Louis of such a distinguished figure in medicine prompts calling attention to his career thus far.

His unusual interest in and ability to understand chemistry enabled him to acquire a student assistantship in chemistry at the University of North Carolina for three years before he graduated in 1904. His ability to teach and do research in chemistry won for him an assistantship in biochemistry at Cornell University in 1910. He then went to Washington University and worked four years with Professor P. A. Shaffer in biochemistry. During this time he became intensely interested in pediatrics, realizing the great need of applying his knowledge of biochemistry to the study and practice of diseases of infants and children. To accomplish this most effectively he first studied the clinical aspects of pediatrics with the late Dr. John Howland at Johns Hopkins, and mastered them so speedily and so well that he was made Professor of Pediatrics at Washington University and Physician-in-Chief of the St. Louis Children's Hospital in 1917. If there were doubts or misgivings in the minds of any about the wisdom of appointing so young a man (for he was then only 32 years old) to fill these positions, they must soon have been completely dispelled by the rapid success of brilliant researches in the field of infant nutrition which soon followed and which proved to be the groundwork for the later much needed simplification of artificial feeding of infants. This work also increased immensely our understanding of the changes occurring in the body as the result of sudden and protracted losses of water



DR. W. McKIM MARRIOTT



and mineral salts and deprivation of food. During these studies he coined the word "anhydremia," and in a masterful monograph on the subject¹ showed to what a great extent the symptoms of acute "intestinal intoxication" and "shock" were due to reduction of circulating blood volume resulting from dehydration. Then followed notable clinical and scientific researches on the effect of acute and chronic infections in infants and children which added much to our understanding of the enteral and parenteral causes of diarrhea in infants, and the mode of production of malnutrition.

In addition to the time and effort expended in the actual research work, Dr. Marriott has constantly given of himself further in making the fruits of his study generally available by his extensive undergraduate and postgraduate teaching, lectures and frequent contacts with his professional colleagues at medical meetings with the result that his identity and work are as well known in the far corners of the world as in Missouri.

While we join with the faculty of Washington University in expressing our regrets for his departure from St. Louis, we cannot help but feel the move is for the best interests of the medical profession generally, and will provide

1. *Physiological Reviews*, April, 1923.

an ideal opportunity for Dr. Marriott to continue unhampered by other duties to apply his unusual talents to his main interest, medical research, and at the same time contribute to the advance of medical education.

REFRESHER COURSES IN OBSTETRICS AND PEDIATRICS STARTED IN JULY

Refresher courses in obstetrics and pediatrics were inaugurated July 20 in various Councilor Districts in the northwest and the southeast portions of the state by the Division of Child Hygiene of the State Board of Health in co-operation with the Committee on Maternal Welfare of the Association.

Invitations were mailed to approximately 320 physicians practicing in Councilor Districts 21, 22, 23, 24 and 25, comprising twenty-one counties, and to approximately 370 physicians in Councilor Districts 1, 3, 4, 11 and 12, comprising twenty-one counties.

The following is a schedule of dates and places where the refresher courses in obstetrics and pediatrics will be held under the direction of Dr. Paul F. Fletcher, obstetrician, and Dr. O. F. Bradford, pediatrician.

Obstetrics

Councilor District 21 (Jefferson, Perry and Ste. Genevieve counties)—Mondays.

Crystal City, Monday, July 20; August 10 and 31.

Ste. Genevieve, Monday, July 27; August 17; September 7.

Perryville, Monday, August 3, 24.

Councilor District 22 (Cape Girardeau, Scott, Mississippi and Bollinger counties)—Tuesdays.

Cape Girardeau, Tuesday, July 21, 28; August 4, 11, 18, 25; September 1, 8.

Councilor District 23 (Dunklin, Pemiscot and New Madrid counties)—Wednesdays.

Caruthersville, Wednesday, July 22; August 5, 19; September 2.

Kennett, Wednesday, July 29; August 12, 26; September 9.

Councilor District 24 (Wayne, Butler, Stoddard, Carter, Shannon and Ripley counties)—Thursdays.

Poplar Bluff, Thursday, July 23, 30; August 6, 13, 20, 27; September 3, 10.

Councilor District 25 (Reynolds, Iron, St. Francois, Madison and Washington counties)—Fridays.

Farmington, Friday, July 24, 31; August 7, 14, 21, 28; September 4, 11.

Pediatrics

Councilor District 12 (Platte, Clay, Ray and Clinton counties)—Mondays.

Excelsior Springs, Hotel Snapps, beginning July 20 at 8 p. m., and continuing each Monday until the course is completed.

Councilor District 1 (Atchison, Holt and Nodaway counties)—Tuesdays.

Maryville, St. Francis Hospital, beginning July 21 at 8 p. m., and continuing each Tuesday until the course is completed.

Councilor District 3 (DeKalb, Harrison, Gentry and Worth counties)—Wednesdays.

Albany, The Dr. Frank W. Rose Hospital, July 22 at 8 p. m., and continuing each Wednesday until the course is completed.

Councilor District 4 (Grundy, Mercer, Putnam and Daviess counties)—Thursdays.

Trenton, Public Library, July 23, at 8 p. m., and continuing each Thursday until the course is completed.

Councilor District 11 (Chariton, Carroll, Livingston, Linn and Caldwell counties)—Fridays.

Chillicothe, Court House, July 24, at 8 p. m., and continuing each Friday until the course is completed.

These programs will be held at the usual meeting places of the county medical societies in each of these towns whenever possible. If there are exceptions this information may be obtained from the county medical society officers or the Councilor.

These itineraries have been arranged so that if a physician misses a meeting in his own district it will be possible for him to attend that particular lecture in one of the adjacent Councilor Districts later in the week.

Condensed outlines of these lectures are published on page 338 of this issue.

All members are urged to avail themselves of this excellent opportunity to attend the lectures. All society officers should take advantage of these meetings to build up membership. Additional application blanks may be obtained from the headquarter's office.

THE PREVENTION OF NEUROSES

In a recent editorial¹ the campaign for the eradication of mental disease waged by the Committee on Mental Health of the Missouri State Medical Association was commented upon. At that time attention was called to the early evidences of mental disease which may be manifested in school children. The lack of adequate home training which the modern environment holds back from many children was dis-

cussed. The aid of the medical profession in bringing about early recognition and treatment of the mind diseased was invoked.

Dr. Alfred Adler, the distinguished Viennese physician and psychiatrist, on the occasion of a recent visit to St. Louis, took the opportunity of enlarging upon the comments offered in that editorial. In a phrase he indicated a method of determining whether the child might be a potential neurotic by asking the question: "Is he a help or a burden to the folks in his home?" His remedy for neurotic tendencies is to expand the social horizon of the individual. These tendencies may be manifest as irritability or hypersensitiveness. They may be the expression of the child's inability to cope with his environment. Neither heredity nor environment determines the development of a neurosis; that is determined by the child's emotional or inner reaction to the facts of the environment. Something within may prevent the optimal utilization of inherited capacities for good. It must be made society's function to ferret out at the earliest moment the stunting of this capacity for good.

The proper person, thinks Dr. Adler, to perform this service is the school teacher whose intimate contact with the child permits her to observe his reaction to a host of situations. Dr. Adler would see school teachers trained to perform this important psychiatric task. Yet we cannot expect them to do anything more than to discover the existence of the defect, or perhaps to suspect it. The education which our Committee wants to bring to every community in the state must be eagerly sought after by all agencies concerned with child education. The Committee must be invited to make careful surveys in particular communities with the object of recommending the establishment of a staff capable of dealing with these earliest manifestations of delinquency to the fullest advantage.

1. Mental Health in the Community, J. Missouri M. A. 33:28 (January) 1936.

THE SIGNIFICANCE OF EXTRASYSTOLES

In general myocardial disturbances are to be interpreted on the basis of functional response rather than on the basis of pathological character. If compensation is adequate, the heart rate not increased and the body without evidence of congestive failure, simple enlargement of the heart as well as cardiac murmurs may be generally disregarded in so far as drug treatment is concerned. On the other hand, such evidence of disturbance in cardiac integ-

rity may give valuable prognostic indications and suggest appropriate limitations upon cardiac effort. Extrasystoles have often been regarded as of little or no significance, yet the surgeon, suddenly informed by the anesthetist during the course of an operation that the patient's pulse is irregular, is no little disturbed. The internist may be at a loss properly to evaluate the appearance of extrasystoles in patients presenting themselves for routine examination or coming on during treatment for an acute infectious disease. Drs. E. P. Boas and H. Levy of New York recently published a critical analysis of 183 patients presenting this phenomenon¹ and came to the conclusion that in half of them the finding is without clinical importance.

Possibly the most significant part of their study is that related to patients with the combination of coronary artery sclerosis and extrasystoles. Of 974 persons with the former syndrome 5.5 per cent exhibited the latter as well. The death rate in the group with both conditions was twice as high as in the group presenting only evidence of coronary artery disease (angina pectoris), actually 21 per cent as opposed to 10.4 per cent. In order that complications, notably coronary thrombosis, may be prevented Boas and Levy advise that after appropriate tests for idiosyncrasy, 5 grains of quinidine sulphate be administered three or four times daily.

Extrasystoles during the course of an acute febrile infection or in patients with thyrotoxicosis indicate cardiac damage. In a case of pneumonia included in their series a systolic murmur appeared some days after the onset of extrasystoles. Such findings urge the need of increased caution permitting these patients to resume their usual duties.

In the case of extrasystoles discovered for the first time during routine examination without other evidence of heart disease, tobacco and coffee should be prohibited in an effort to relieve the heart of the poisonous effects of these agents. At the same time it must be borne in mind that salicylates as well as digitalis in overdoses may cause their appearance. In the event of a persistent tachycardia these irregular heart beats, regardless of their origin in either auricle or ventricle, are to be regarded with concern. It may be considered wise, these authors think, to exhibit quinidine sulphate in appropriate dosage to all patients showing extrasystoles in association with frank evidence of heart disease or with the anginal syndrome, and more particularly in the case of persons in the older age group even without these signs and symptoms.

1. Boas, E. P., and Levy, H.: Extrasystoles of Clinical Significance, Am. Heart J. 11:264 (March) 1936.

KANSAS CITY SOUTHWEST CLINICAL SOCIETY FALL CONFERENCE

The Kansas City Southwest Clinical Society will hold its fourteenth annual Fall Clinical Conference in the new Municipal Auditorium, Kansas City, Missouri, October 5 to 8.

This four day conference will consist of scientific addresses by guest speakers from various cities of the United States and by members of the society. The new features of this year's conference will include clinicopathological conferences to be presented by the pathologists of Greater Kansas City and special clinics on the heart, chest, gastro-intestinal tract, orthopedics, cancer and obstetrics and gynecology. A period of one hour or more will be devoted to each of these special clinics with patient demonstration.

A public health meeting will be held on Monday evening, October 5, for the physicians and their friends. Speakers for this meeting will be Dr. J. Arthur Myers, Minneapolis, and Dr. Milton A. Bridges, New York City.

The scientific meeting on Tuesday evening, October 6, will be presented in conjunction with the Jackson County Medical Society with addresses by Dr. George E. Bennett, Baltimore, Dr. Urban Maes, New Orleans, and Dr. J. Arthur Myers, Minneapolis.

Daily round table luncheons will be held each day with addresses by two guest speakers. Wednesday evening will be devoted to entertainment and the closing event, the alumni dinners, will be on Thursday evening.

The August issue of the *Monthly Bulletin* of the Kansas City Southwest Clinical Society will carry announcements of this intensive program. A copy of this will be mailed upon request to the Kansas City Southwest Clinical Society, 207 Shukert Building, Kansas City.

UMBRAGE AND REMEDIATION

Corporate organizations within the body politic mold public opinion, induce much needed reform and increase the well-being of the individual both by calling attention to defects within the state and by consistently pressing for reform. The mere declaration of a diseased condition is of little moment; in fact, it may tend to disparage the organization which thus brings publicity to itself and opprobrium upon the indicted group. The recent activities of our kindred professional association, the Bar, illustrate the truth of this observation. For years there was much loose talk, badinage about ambulance chasers and unethical lawyers. The recent overt actions of the Bar Association in ridding itself of undesirable members has done more than any other single action to increase

the esteem in which it is generally regarded; umbrage translated into constructive action has immeasurably increased the prestige of the lawyers.

The St. Louis Medical Society has in recent months inaugurated a campaign of publicity designed to call attention, among other things, to the poor quality of milk furnished the townsfolk, the insanitary hovels which are called home by many, the menace of overflowing garbage cans, the danger of large and ungoverned rat colonies. It must not be satisfied with such publicity; it must make a continued effort to bring about such legislative action as will ensure the remediation of the unsightly conditions. The culmination of its activities will go far toward determining a new attitude of healthy respect on the part of the citizens of the community for the power and ability and wisdom of organized medicine. The Missouri State Medical Association is to be congratulated on having within it a component Society so alert to the requirements of healthy living; it is sure to offer every assistance within its power to the worthy purpose of increasing community health and well-being.

NEWS NOTES

Members of the Council of the Jackson County Medical Society and their wives were guests of Dr. and Mrs. Ambrose E. Eubank, Kansas City, at their country home near Independence on June 16. Business was transacted preceding an excellent dinner served *al fresco*.

The National Medical Council on Birth Control was organized in June, 1936, for the following purposes: To control and supervise all medical policies of the American Birth Control League, and to initiate, encourage and execute appropriate scientific research in the medical aspects of birth control. Dr. Fred J. Taussig, St. Louis, is a member of the council of the new organization.

The Receiving Hospital of the Kansas City General Hospital, Kansas City, Missouri, was opened July 6. In this building are all necessary facilities for emergency care and temporary housing. All patients not admitted to the General Hospital through the Outpatient Department will be admitted through the Receiving Hospital. There are three chiefs of service who will change every four months, all to be

chosen from the membership of the Jackson County Medical Society; a resident physician and two interns, all of whom will be on duty or on call at all times. Adequate nursing and orderly service will be provided to care for the twenty-seven beds comprising the service.

The Kentucky State Medical Association will meet in Paducah, October 5 to 8. Dr. Ross A. Woolsey, St. Louis, President, Missouri State Medical Association, has been invited to be a special guest at the session and all Missouri members are invited to attend.

Approximately two hundred attended the annual basket picnic of the St. Louis County Medical Society which was held at the home of Dr. John O'Connell, Overland, on June 28. An informal program of entertainment including the Pevely educated horse was presented and swimming, tennis, volley ball, base ball and other outdoor sports were available. Several companies had exhibits of products used by physicians.

The American Public Health Association will convene in New Orleans, October 20 to 23, for its 65th annual meeting. Officials from the various branches of federal, state, city and county health departments from every state, from Canada, Cuba and Mexico, will gather in New Orleans. Dr. Thomas A. Parran, Jr., Surgeon General of the United States Public Health Service, is president-elect of the Association and will be honored at New Orleans.

Russia recently passed a law by which it joins the rest of the civilized world in its attitude toward abortions. Of this change *Time* says: "In practical Joseph Stalin's quiet process of throwing overboard unworkable schemes for tampering with fundamentals, the Soviet Government decreed last week reversal of the Communist laws under which abortion has been free and easy throughout Russia. As recently as 1930 the Dictator encouraged public celebration of 'The Tenth Anniversary of the Legalization of Abortion in Russia.' Under last week's law Russia rejoins the rest of the civilized world in prohibiting abortion, except where necessary to preserve the life of the prospective mother, or in extreme cases of venereal disease. Reason: Soviet gynecologists have convinced the Kremlin that sixteen years of easy abortion on a nation-wide scale have impaired the health of hundreds of thousands of Russian women, however much it achieved in realizing Communist ideals of equality of the sexes and a single Soviet standard of morality."

Books for Leisure Moments

My first reaction to "Why Keep Them Alive?" Paul de Kruif's latest book (Harcourt, Brace and Company, New York), was that it would serve as an excellent handbook in the coming political campaign. As I read its diatribes against the economic experiments and the inhumanity of alphabetized government it seemed exactly the sort of thing that its opponents had been seeking. Here is no cold analytical survey of the ill results of a system that attempts regimentation of human lives. It is rather an impassioned plea (that might have been dashed off without any attempt at grammatical construction) against human institutions that have persisted throughout the ages. The Roman Circus was a form of entertainment provided by the emperor and designed to take the thoughts of the populace away from their empty stomachs; by contrast the unremembered promises of modern political generalissimos are designed to lull the mind and soul of the beleaguered citizen into resignation or complacent gratitude.

The sophistries of the French queen who suggested that her subjects should eat cake if they could not have bread are as the senseless prattling of infants compared to the scathing denunciation which de Kruif heaps upon a system that has robbed its citizens of a chance to earn their bread, and then having robbed them of that chance fails to live up to its promises to supply them with the means of livelihood or adequate relief.

But on second thought I wondered wherein lies the difference between this proper sentimental outburst of an indignant citizen at twentieth century injustice and the similar indignation of Voltaire and the prophets of other revolutions. After all there has never been equality of opportunity in the whole history of the world. The glory that Greece achieved was in no small part due to the system of slavery that was imposed upon her less consequential citizens. It is not improbable that even in the magnificence of that fifth century before Christ people were hungry; certainly they were sick, and probably they were deprived of the necessities with which to eke out a miserable existence. Wherefore this sudden, impassioned outbreak from the apostle of science, the reporter who humanizes the achievements of a host of medical investigators?

Because the scientific advances of the last half century cannot be applied to the mass of people, because there is no economic mechanism which makes it feasible to carry the results of the laboratory into the lives of the people, de Kruif seeks to spread his account of the inequalities which are everywhere rampant. The understanding of feeding and nutrition which has advanced to high estate is useless in the face of continued indifference on the part of the higher-ups. The orders to plow under cereal foodstuffs and to kill off surplus cattle appear ridiculous in the face of the powerful arguments of de Kruif; indeed, they are little short of scandalous if one bears in mind the analysis of nutritional requirements for the country which de Kruif compiles from the government's own figures—and then goes on to show that even in the heyday of prosperity there were produced over two billion pounds less of butter, twenty billion pounds less of fresh fruit, seven billion pounds less of vegetables, two billion pounds less of beef, even two billion fewer chickens (in every pot) than would be required by the liberal diet standard set up by the Department of Agriculture's Circular 296.

Physicians long practiced in the difficult art of telling patients to eat what they have not, of advising sunshine when there is none nearer than a thousand miles to the south, will find that de Kruif makes articulate their own indignation over the failure of the economic and political overlords to provide for their minions in a manner befitting to twentieth century achievement in the fields of science. They may find hope for further attack upon the death dealing foes of mankind in the heartening experience of Detroit's attack upon tuberculosis; they may find ammunition which will appeal to hard-hearted bankers in their efforts to get money to provide needed auxiliaries in the fight against death. For, strange as it may sound, de Kruif adduces evidence to prove that it is economically cheaper to keep men and women and children alive and well than it is to let them be overpowered by illness and bury them. Physicians, long sickened by the specter of ill health will be likely to endorse the fight which this author is waging for an equal opportunity to eat and breathe and live, to enjoy a reasonable degree of health even if the modern economic slave cannot enjoy life itself.

Yet, in a large sense, it seems to me that this book might have been written at any one of a number of stages in the history of civilization. True, the scientific data, the progress of the men against death and the hunger fighters would have been at a different level in one of these other chronological eras of history. Relatively, I dare say, the situation would have been the same. A hundred years ago Benjamin Rush did not know the cause of yellow fever; but had some of his less famous contemporaries been successful in their efforts to get rid of those areas where mosquitoes could breed (even though their reasoning was wrong) the epidemic which decimated Philadelphia would have been much less severe. There has always been a hiatus between the acquisition of the knowledge of human welfare and its practical application to the downtrodden peoples of any political era. Whether this situation will continue will no doubt depend upon the success with which reporters and reformers like de Kruif tell their story. But more than that it will depend upon the discovery of a method which will induce the masses of the people to overcome the lethargy which is so characteristic of any mass; it will depend upon the awareness of these people; it will depend upon the development of a mass perception of peaceful, orderly means by which the interminable new discoveries of science can be applied to ease the pains and the hunger and the heartaches of a hundred and thirty million people. There must be economic change. Compared with Furnas' account of "The Next Hundred Years," reviewed in this column recently, de Kruif makes vivid the tremendous gap which exists between the already discovered "science" and its application to human welfare. In view of their own experiences and observations physicians generally will be likely to agree with de Kruif and to hope that the day is not far distant when they may really utilize at the bedside the vitally important scientific discoveries of the last hundred years.

Wendell White, Ph.D., assistant professor of psychology at the University of Minnesota offers the first of a series of books systematically covering "The Psychology of Dealing With People" (The Macmillan Company, New York). This one bears the subtitle "Appealing to the Want for a Feeling of Personal Worth." The volume is divided into four parts: Dealing with people in life situations in general, preventing wrongdoing, preventing peculiar behavior, furthering

mental health. In general, the purpose of the author is to advise as to the manner of getting other people to follow a particular course of action without allowing them to develop either a feeling of inferiority or a resentful attitude. Observations as to the psychological appeal of various phrases used in advertising, by employers, foremen, parents, school teachers, etc., are offered. Hobbies are suggested to give the individual the feeling of personal satisfaction which his regular occupation may deny him.—B. Y. G.

OBITUARY

CHARLES HODGE WALLACE, JR., M.D.

Dr. Charles Hodge Wallace, Jr., St. Joseph, a graduate of the University of Pennsylvania School of Medicine, 1924, died of meningitis following a mastoid operation, April 26, aged 36.

Dr. Wallace was operated on for mastoid on March 25 and after apparently recovering became ill on April 16 and was taken to a hospital in Rochester, Minnesota, where he died.

Dr. Wallace was born in St. Joseph where he received his early education. He was graduated in medicine with high scholastic honors. In 1925 and 1926 he served as an intern in the Lankenau Hospital, Philadelphia, under the late Dr. John B. Deaver. He was a diplomate of the national board of medical examiners and in 1927 began practice in St. Joseph with his father, Dr. C. H. Wallace, and his brother, Dr. Hilen K. Wallace.

He came of an unusually fine lineage. His mother is from a family of high culture and splendid attain-



CHARLES HODGE WALLACE, JR., M.D.

ments. His father has graced the medical profession for many years and his ability as a surgeon has been recognized throughout the country, a man who has always devoted himself not only to the field of medicine but to civic and benevolent enterprises of all kinds. Both parental families of Dr. Wallace's contributed men of distinction to the fields of medicine, letters, law and theology.

Dr. Hodge, as he was affectionately known to his friends and patients, professionally commanded their highest respect. He combined a sense of rare good humor and equanimity of disposition that is not often equalled.

He was division surgeon for the Union Pacific railroad; assistant surgeon for the St. Joseph Railway, Light, Heat and Power Company; assistant medical director of the American Union Life Insurance Company; surgeon of the St. Joseph Union Depot Company and local surgeon of the Burlington, Santa Fe and the Missouri Pacific railroads.

He was a member of the American College of Surgeons, the American Medical Association, the Missouri State Medical Association, the Buchanan County Medical Society and the St. Joseph Journal Club. He was president of the Benton Club and a member of the St. Joseph Golf and Country Club and the Chamber of Commerce. His hobby was hunting and fishing.

He is survived by his widow, Mrs. Elizabeth Smith Wallace, a daughter, his parents and his brother.

JOHN MILTON WALKER, M.D.

Dr. John Milton Walker, Kansas City, died June 11, 1936, of lobar pneumonia after a week's illness. Dr. Walker was born July 11, 1890, in Kansas City, Missouri. He was educated in the public schools of Kansas City, graduating from the Manual Training High School in 1908. In 1909 he entered the University Medical College, Kansas City, and at the end of his sophomore year transferred to Tulane University, New Orleans, Louisiana, where he received his M.D. degree in 1913.

Dr. Walker engaged in the general practice of medicine in Kansas City from the time of his graduation to the time of his death. He was particularly interested in obstetrics and was a member of the staff at St. Joseph's Hospital and Trinity Lutheran Hospital.

During the World War he was a Lieutenant, Senior Grade, U. S. Navy, and was on active duty for two years at the Great Lakes Training Station.

Dr. Walker's untimely death was a great shock to all of his friends in and out of the medical profession. He was modest and efficient in his work, and a credit to the medical profession. Let us hope that the Jackson County Medical Society will have more members with a life record such as that of Dr. John Milton Walker—E. S. C. in the Jackson County Medical Journal.

ELMER LEE RUBLE, M.D.

Fifty-five years ago Dr. Elmer Lee Ruble was born in Centre Hall, Pennsylvania. He moved to Iola, Kansas, in his boyhood days and grew to manhood and attended the schools there. The M.D. degree was conferred upon him by the University Medical College of Kansas City, in the class of 1905.

He began his medical career in Kansas City where he continued it for thirty-one years until he died, after several weeks of illness from heart disease, June 1, 1936. He was a physician and surgeon. His marriage to Miss Helen Murray of Tennessee took place in 1913.

Robert Lee and E. L. Ruble, Jr., were born to this union.

He was made a first lieutenant in the medical department during the World War and served his country until peace was declared. Postgraduate study was done at Rockefeller Institute, Rochester, Minnesota, and Baltimore, Maryland. He was a member of the Jackson County Medical Society and the American Medical Association, the Masonic Fraternity, also a staff member of St. Mary's Hospital.

Mrs. Ruble, two sons of the home, five sisters, Mrs. Anna R. Stevens, Warrensburg, Miss Mary Ruble of the home, Mrs. Bertha R. Warren and Mrs. Grace Bagby, Kansas City, and Mrs. L. A. Bass, Portland, Oregon, and two brothers, James Ruble of Parker, Kansas, and J. C. Ruble of Utopia, Kansas, survive. The funeral was at 10:30 a. m. June 4 from the Eylar chapel, burial in Mt. Moriah Cemetery. Pastor Burris A. Jenkins conducted the funeral services. Dr. Jenkins seems to know how to conduct a physician's funeral in a way that conveys sympathy to all present. Thirty-one years is a long time to be engaged in the practice of medicine. Dr. Ruble was kind, earnest, polite and a hard working physician. His patients' welfare was the paramount thought of his life. His life was gloriously worth while because the best in his services predominated on all occasions.—H. T. F. in the Jackson County Medical Journal.

EDMOND D. STANDLY, M.D.

Dr. Edmond D. Standly, Brookfield, a graduate of the University Medical College, Kansas City, 1898, died June 16, aged 64.

Dr. Standly was born in Westfield, Illinois. He attended the Westfield College and then entered the University Medical College from which he was graduated in 1898. He served an internship of a year and a half at the Kansas City General Hospital before locating at Linneus. He practiced in Linneus until 1911 when he moved to Brookfield where he remained in active practice until his recent illness and death.

He served as Captain during the World War. At one time he served as county physician. He was active in organized medicine and had served the Linn County Medical Society in various capacities.

He was a member of the Odd Fellows and Masonic Orders, being a 32nd degree Mason.

Dr. Standly is survived by his widow, Mrs. Ida Standly.

CAROTENEMIA IN DIABETES

Walter Heymann, Cleveland (Journal A. M. A., June 13, 1936), states that the blood serum carotene curves obtained in ten diabetic children after the administration by mouth of carotene in oil were distinctly different from those obtained in twelve nondiabetic, healthy children and demonstrated that the metabolism of carotene is interfered with in diabetes. The carotene content of the blood, when it was once increased in the diabetic patients, failed to show the normal decline and remained elevated or even kept on increasing for from ten to fourteen days after the administration of the carotene in oil had been discontinued. The analogy with the hyperglycemic reaction after sugar is given by mouth to diabetic patients is striking and speaks in favor of assuming that the utilization of carotene has been interfered with in diabetes. The diabetic carotenemia can consequently no longer be explained merely by the high carotene content of the diabetic diet.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1936

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 19, 1935.

Montgomery County Medical Society, January 7, 1936.

Ste. Genevieve County Medical Society, January 8, 1936.

Camden County Medical Society, January 9, 1936.

Dent County Medical Society, January 13, 1936.

Perry County Medical Society, January 17, 1936.

Webster County Medical Society, February 4, 1936.

Moniteau County Medical Society, February 29, 1936.

Benton County Medical Society, April 6, 1936.

Phelps-Crawford County Medical Society, April 6, 1936.

Jefferson County Medical Society, April 20, 1936.

CASS COUNTY MEDICAL SOCIETY

The Cass County Medical Society held its regular quarterly meeting at the office of Dr. M. P. Overholser, Harrisonville, at 7:30 p. m., June 11, Dr. B. B. Tout, Archie, president, in the chair.

Dr. Edgar M. Griffith, Harrisonville, was elected to membership. Dr. Orval T. Needels, Harrisonville, was elected to membership by transfer from the Sedgwick County (Kansas) Medical Society.

The remitting of Dr. David S. Long's dues because of total disability resulting from illness was discussed and action was deferred to a later meeting.

Dr. T. W. Adair, Archie, asked for advice concerning a physician's rights and limits to prescribe narcotics for an addict.

Dr. L. V. Murray, Pleasant Hill, read a paper on "Chronic Endocervicitis" which was discussed generally.

Dr. M. P. Overholser read a good report of the Kansas City Meeting of the American Medical Association.

The question as to whether Cass County needs a county hospital was discussed quite freely. The Society went on record as favoring a hospital. Dr. M. P. Overholser, Harrisonville, moved that the president appoint a committee to obtain information on public sentiment, estimated cost and maintenance, location, kind, size, etc., of an adequate hospital building and report its findings at a subsequent meeting. This motion was seconded and carried. The president appointed Drs. B. O. Hartwell, Drexel; O. T. Needels, Harrisonville, and Wm. Beckman, Strasburg, to serve on this committee.

The Society was invited to meet in Pleasant Hill for its meeting September 10.

Members present were Drs. T. W. Adair, Archie; William Beckman, Strasburg; B. O. Hartwell, Drexel; L. V. Murray, Pleasant Hill; O. T. Needels, Harrisonville; M. P. Overholser, Harrisonville; B. B. Tout, Archie, and J. S. Triplett, Harrisonville. Visitors were Drs. J. G. Sheldon, Kansas City, and R. H. Smith, Rich Hill, and Mrs. Lela Lynch, Harrisonville.

J. S. TRIPLETT, M.D., Secretary.

DALLAS-HICKORY-POLK COUNTY MEDICAL SOCIETY

The Dallas-Hickory-Polk County Medical Society met on the Municipal Lawn in Humansville, July 14, with the following present: Drs. C. H. Brown, Fair Play; V. H. Greenwood and G. C. Plummer, Buffalo; C. R. Nevins, R. C. Nevins, A. J. Stufflebam and H. M. Stufflebam, Humansville; W. O. Reser, Weaubleau; G. K. Sims and G. D. Smith, Bolivar, and T. D. Wrinkle, Halfway.

Censors were elected as follows: Dr. V. H. Greenwood, Buffalo, Dallas County, for one year; Dr. A. S. Johnston, Wheatland, Hickory County, for three years; Dr. C. H. Brown, Fair Play, Polk County, for two years.

A communication from Dr. E. J. Goodwin was read in which he called attention to the differentiation between membership and fellowship in the American Medical Association.

The secretary read a letter from Dr. J. L. Johnston, former secretary-treasurer, directing the cashier of the Bank of Hermitage to send to the present secretary-treasurer, Dr. G. K. Sims, the balance which remained to the credit of the Society.

Dr. H. J. Harrell, Morrisville, was elected to membership.

The remainder of the meeting was devoted to a discussion of interesting cases, evoking general comment from the members.

It was decided to hold the next meeting at Bennett Springs, August 11, at 2 p. m. at which time the wives of the members are to be invited to be present for a fish dinner following the program.

G. K. SIMS, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

15th Annual Meeting, Atlantic City, 1937

President, Mrs. Robert Fitzgerald, Wauwatosa, Wisconsin.

President-Elect, Mrs. Augustus Kech, Altoona, Pennsylvania.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

13th Annual Meeting, Cape Girardeau, 1937

President, Mrs. Walter Kirchner, St. Louis.

President-Elect, Mrs. Charles Werner, St. Joseph.

Mrs. Frank L. Davis and Mrs. Hudson Talbott, St. Louis, entertained the women of the St. Louis Medical Auxiliary at a tea at "Twin Gates," the home of

Mrs. Talbott on Redman Road, St. Louis County, on June 30 honoring Mrs. Walter Kirchner, St. Louis, the new state president, and the outgoing and incoming presidents of the St. Louis Auxiliary, Mrs. Joseph M. Trigg and Mrs. Antoine Hall.

The Clay County Auxiliary had its annual business meeting at the Odd Fellows Home near Liberty on June 26. This meeting followed a dinner given to the doctors and their wives. The Auxiliary was glad to welcome back one of its charter members, Mrs. J. W. Eppler of Kearney.

The Cass County Auxiliary of which Mrs. David S. Long, Harrisonville, is president, voted at its quarterly meeting in June to sponsor the state auxiliary's essay contest again, and to find ways and means to place *Hygeia* again in the rural and grade schools of the county.

Mrs. A. B. McGlothlan, state president of the Missouri Association of Social Welfare, conducted social welfare meetings in Joplin and Springfield, July 1 and 2 respectively and will conduct a similar meeting in St. Louis this month. Mrs. McGlothlan is a past president of both the state and national auxiliaries.

Dr. and Mrs. W. L. Allee, Eldon, had as guests at their cottage on the Lake of the Ozarks, Dr. and Mrs. David S. Long, Harrisonville.

MISCELLANY

CONDENSED OUTLINE OF POSTGRADUATE LECTURES IN OBSTETRICS AND PEDIATRICS, MATERNAL AND CHILD HEALTH PROGRAM

Under Auspices of United States Children's Bureau, State Board of Health, and Missouri State Medical Association

Obstetrics, Paul F. Fletcher, M.D., Lecturer

- I. Maternal and Fetal Mortality
 - a. Purposes of program.
 - b. Problems involved
 - c. Causes of maternal deaths
 - d. Medical problems involved
 - e. Causes of fetal death
 - f. Education of public in these problems
- II. The Prospective Mother
 - a. Diagnosis of pregnancy
 - b. Determination of date of confinement
 - c. Asepsis vs. antisepsis
 - d. Antiseptic solutions
- III. Prenatal Care
 - a. First interview
 - b. Physical and pelvic examinations with pelvimetry
 - c. Regular observation, diet, exercise, abdominal supports, clothing, etc.
 - d. Blood, teeth, breasts, bowels, douches, coitus, etc.
 - e. Preparations for home delivery
- IV. Toxemias of Pregnancy
 - a. Vomiting
 - b. Pre-eclamptic toxemia
 - c. Eclampsia
 - d. Nephritic toxemias
- V. Conduct of Normal Labor
 - a. Forces concerned in
 - b. Changes taking place in

- c. Clinical course of
- d. Mechanism in vertex presentations
- e. Mechanism in breech presentations
- VI. Operative Obstetrics
 - a. Forceps
 - b. Version and extraction
 - c. Caesarean section
- VII. Pathology of Labor
 - a. Placenta praevia
 - b. Premature separation of the placenta
 - c. Asphyxia neonatorum and intra-cranial hemorrhage
- VIII. Management of the Puerperium
 - a. Normal physiological changes in
 - b. Puerperal infection

Pediatrics, O. F. Bradford, M.D., Lecturer

- I. Care of the Newborn
 - a. Immediate care, food, water, clothing, etc.
 - b. Careful examination of newborn
 - c. Defects; starvation, hemorrhage, hunger, etc.
- II. Infant Feeding
 - a. Food necessities
 - b. Milk feeding with normal child as an example
 - c. Hygiene and prevention of illness
- III. Respiratory Infections
 - a. Nose, throat, and mouth
 - b. Pulmonary tuberculosis in childhood
 - c. Hygiene and prevention of tuberculosis
- IV. Diseases of the Intestinal Tract
 - a. Typhoid fever, dysentery, and constipation
 - b. Bowel obstruction, congenital, and acquired
 - c. Appendicitis in childhood; prevention and diagnosis
- V. Acute Infectious Diseases
 - a. Whooping cough with diagnosis and treatment
 - b. Measles, diagnosis and treatment
 - c. German measles, diagnosis and treatment
- VI. Acute Infectious Diseases, continued
 - a. Smallpox, chickenpox, and mumps. Diagnosis and treatment
- VII. Acute Infectious Diseases, continued
 - a. Scarlet fever and diphtheria. History, prevalence, prevention, diagnosis, and treatment
- VIII. Diseases of the Skin and Syphilis
 - a. Types of disease. Prevention, diagnosis, and treatment, with follow-up treatment for syphilis.

THE BONE MARROW

R. H. Jaffé, Chicago (Journal A. M. A., July 11, 1936), asserts that the improvement in the technic of biopsies of the bone marrow has added a valuable method to the diagnostic laboratory procedures to which the clinician can resort in the cases in which the examination of the peripheral blood fails to give definite information. The importance of the examination of the bone marrow in vivo becomes evident if one considers the fact that the circulating blood does not always reflect the condition of the bone marrow. Great differences exist sometimes between the cellular content of the blood and that of the bone marrow which may be the source of diagnostic errors. Since the biopsy of the bone marrow is expected to become widely used in clinical medicine, he presents a brief discussion of the normal bone marrow and of the changes that are observed in some of the important disturbances of blood formation.

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RATIONAL ENDOCRINE THERAPY IN GYNECOLOGY

ROBERT J. CROSSEN, M.D.

ST. LOUIS

In dealing with a subject in which there has been such rapid advances it is necessary to summarize briefly the known pelvic endocrine relations. No attempt will be made this afternoon to cover all the pelvic endocrine relations and effects as we are concerned in this discussion only with those of therapeutic importance.

The modern conception of the endocrine mechanism of menstruation is reviewed because of its relation to menorrhagia and amenorrhea. With the onset of puberty and menstruation a cycle of changes is set up involving the anterior lobe of the pituitary gland, the ovaries and the uterus. The factor initiating the onset of these cyclic changes is not clearly understood so we will start with the gonadotropic hormone, which is the product of the basophilic cells in the anterior lobe of the pituitary gland. Opinion has been divided as to whether this is a single hormone or two hormones, but the consensus of opinion at the present time is that there are two. These act on the ovary in the following way: Pituitary A starts the follicle ripening and stimulates the granulosa cells to secrete estrin; after full development of the follicle Pituitary A is a factor in causing ovulation. After ovulation Pituitary B luteinizes the granulosa cells and stimulates them to produce progesterin.

The estrin controls the growth phase of the endometrium during the first half of the cycle and the progesterin causes the secretory changes in the glands during the second half of the cycle. Estrin is important in nutrition of the endometrium in the secretory phase.

The amount of the follicular hormone formed increases steadily through the cycle, reaching its

highest peak just before menstruation. Estrin inhibits the production of the gonadotropic hormone in the anterior lobe of the pituitary, consequently as the level of estrin rises in the blood there is a corresponding decrease in the secretion of Pituitary A and B. When this decrease in the amount of the gonadotropic hormone becomes so marked that it is insufficient to maintain the nutrition of the corpus luteum, the latter undergoes retrogression with a resulting cessation in the production of both progesterin and estrin. The sudden withdrawal of the estrin, which is the important nutrient factor in the built up endometrium, causes a breaking down of this membrane with the resulting flow of blood and debris called menstruation. The withdrawal of estrin from the blood also removes the inhibitory effect on the basophilic cells in the anterior lobe of the pituitary and these now begin again to produce the gonadotropic hormone which in turn starts a new follicle ripening initiating another menstrual cycle.

Other specific endocrine reactions will be mentioned under the various conditions where these reactions are important from a therapeutic standpoint.

Thyroid function is important in pelvic disorders and for this reason the basal metabolism test should be the starting point of any endocrine investigation. If the test shows a lowered function a test of thyroid treatment should be tried before going to the trouble and expense of ovarian and pituitary tests and treatment. In the discussions that follow it will be assumed that this has been done in each case.

A word should be inserted here as to the reliability and availability of the various hormone tests used for pelvic diagnosis. Progress is being made rapidly along these lines but as yet it is only possible to get the tests done in large centers and they are not accurate enough from a quantitative standpoint to be of much help in indicating the therapy needed. Probably the most valuable test of pelvic function available at the present time is the premenstrual curetage. From examination of the scrapings of the

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Table 1. Standardized Commercial Endocrines Available

Estrogenic (follicular hormone, estrin)	Intramuscularly	Theelin (Parke, Davis)	1,000 International units
		Amniotin (Squibb)	2,000 International units
		Progynon (Schering)	8,000 International units
	Orally	Progynon-B (Ciba)	25 Rat units
		Progynon tablets each (Schering)	2,000 Rat units
		Amniotin, solution cc. (Squibb)	5 Rat units
Progestin (corpus luteum principle)	Intramuscularly	Theelin, capsules each (Parke, Davis)	400 Rat units
		Emmenin (Ayerst-McKenna, Canada)	50 Rat units
		Amniotin, each (Squibb)	5 Day oral units
	Orally	Theelin, each (Parke, Davis)	75 Rat units
		Amniotin, each (Squibb)	50 Rat units
		Progynon tablets each (Schering)	25 Rat units
Prolan—mostly B—(urinary anterior pituitary-like hormones with antiestrin effect)	Intramuscularly	Antuitrin-S (Parke, Davis)	1/5 International unit
		Follutein (Squibb)	1/25 International unit
		Antophysin (Winthrop)	1 International unit
	Orally	A. P. L. (Ayerst-McKenna, Canada)	5 International unit
		Antophysin tablets each (Winthrop)	100 & 500 Rat units
		Antophysin tablets each (Winthrop)	100 One day units (Collip)
Standardized anterior pituitary extract	Intramuscularly	Gynatrin (Searle)	150 Rat units
		Prephysin (Chappel)	100 Rat units

endometrium at this period in the cycle one can usually tell if ovulation has occurred and also if the amount of progestin is sufficient to cause the normal premenstrual changes.

Diagnosis.—There is no opportunity in the short time allotted to discuss the important question of diagnosis. It is of course obvious that every means should be used to make an accurate diagnosis before treatment is started, for if this is not done one may be treating everything from carcinoma to tubal pregnancy with endocrines. It will be assumed in the discussion to follow that the diagnosis has been narrowed down in each case to a disturbance in pelvic endocrine function.

Endocrine Bleeding.—The usual condition found in these cases is endometrial hyperplasia. It is now known that hyperplasia is caused by an excess of estrin or by an absence of progestin, which conditions are present when ovulation fails to occur. This is called anovulatory bleeding and it is a condition most common at the two ends of menstrual life; namely, at puberty, when the cyclic changes are starting, and at the menopause, when the ovulatory mechanism is stopping. At puberty it is important because the blood loss is sometimes very great. We had a case of a young girl in whom the bleeding

with her first menstrual period was so profuse that she had to have five transfusions. The bleeding in her case was not controlled until the proper endocrine therapy was given. At the menopause it is dangerous, not only because of the blood loss but also because of the danger of the development of adenocarcinoma of the fundus if the abnormal activity is allowed to persist.

The treatment in the child-bearing period should be directed toward temporary control of the flow and permanent correction of the underlying cause by establishing ovulation. The first end is accomplished by administration of progestin, and the second by supplying Pituitary A.

The age of the patient and the severity of the bleeding help to determine whether the endocrine treatment should be supplemented by curettage or radium therapy.

Amenorrhea.—In all cases of amenorrhea the underlying cause should be determined where possible before treatment is instituted. Not only local causes as absence of uterus or vagina, but also distant factors such as calcification of the anterior lobe of the pituitary should be checked. The absurdity of treating a case with an incurable condition is obvious. The other side of the question; namely, why

treat amenorrhea even in cases without any definite cause for the amenorrhea also needs mention. The importance of treating girls and young women with this condition is forcefully impressed upon one when these patients present themselves later in life as sterility problems. If nothing has been done in early life to keep these patients in partial endocrine balance, the uterus is usually found to be irretrievably atrophic and no amount of treatment can succeed in bringing it back to normal.

Treatment.—In these cases it is usually necessary to give the hormones over a long period of time so it is better to try the preparation that can be given by mouth first, resorting to hypodermic administration later if the oral preparations are not adequate. The purpose of the treatment is to give the various hormones concerned in pelvic function in sequence as they act normally. Since we do not know the normal cycle in a person who is not menstruating, it is well to allow a week to elapse between each twenty-eight day cycle of treatment so that the chance of coinciding with the patient's suppressed cycle is increased. In many of these cases after the patient has had a number of periods with the aid of hormone administration her own cycle gradually becomes established. Thyroid is important even in cases where the basal is apparently normal as it seems to enhance the action of the other endocrines.

During the first fourteen days the oral estrogenic hormones should be used, emmenin, progynon, theelol and amniotin are some of the most effective. No satisfactory commercial oral pituitary preparation is obtainable so far as I know. During the second half the cycle corpus luteum emplets are added to the oral estrin for twelve days. After this all medication is stopped for we know that it is the withdrawal of estrin that precipitates menstruation. If no menstruation occurs, a week is allowed to elapse and the same course is tried again. If there are no results after four four week courses then the hypodermic administration may be tried in the same sequence. Estrin preparations are given hypodermically during the first fourteen days. There are two standardized anterior pituitary preparations on the market (gynatrin, prehysin); 1 cc. of either should be given daily between the tenth and the eighteenth day. Proluton (five international units) is a potent progestin preparation for hypodermic use and this should be given daily from the fifteenth to the twenty-sixth day. The anterior pituitary-like hormones obtained from pregnant urine do not luteinize the follicles in the human as they do in animals but destroy them, hence it is not indicated.

As was mentioned in the opening paragraph

general treatment is important to these conditions but it can not be considered here.

Sterility.—This subject is discussed next because the treatment is similar to that used for amenorrhea, that is, the normal period is reinforced by supplying the hormones in their normal sequence. This treatment however should only be employed after a thorough investigation of the sterile couple has shown that there is no other cause for the sterility. If after eliminating other causes for the sterility it is felt that the endocrine therapy is indicated the hypodermic administration is usually more effective than the oral. The Pituitary A in the anterior pituitary preparations aid ovulation and the progestin preparation helps in establishing a normal progestational or premenstrual endometrium.

Dysmenorrhea.—Since the work of Novak and Reynolds demonstrating that estrin caused exaggerated uterine contractions and progestin caused diminished uterine contractions this knowledge has been used in the treatment of certain cases of dysmenorrhea. These authors recommended the use of the anterior pituitary-like hormone and claimed some encouraging results with its use. The theory at that time was that the anterior pituitary hormone luteinized the granulosa cells of the follicle in the human as it did in the experimental animal. This theory has since been shown to be incorrect; the effect in the human is a destruction of the follicle and it is probably due to the destruction of these follicles with the consequent lowering of the estrin level that gives the favorable result obtained. Pituitary products tending to cause ovulation should be beneficial in dysmenorrhea because they would give normal corpus luteum formation. Proluton is very effective in temporary relief of dysmenorrhea.

Menopause.—As Maranon points out in his excellent book on the "Climacteric," the symptoms found in patients during this period of life are usually due to an upset in the functioning of the endocrine system and not merely to a cessation of ovarian function. It is important to check up the function of the pituitary, thyroid and adrenals as well as the ovarian function. We do not have accurate tests for all of these glands but the symptoms presented by the patient point the way to the therapy needed.

Concerning the ovarian findings in the menopause period Novak found an absence of corpus lutea and an increase in the number of unruptured follicles. This is of course what one would expect with the cessation of ovulation. Deductions from these findings would lead one to the conclusion that in the menopause progestin is indicated and estrin contraindicated, in

cases where the ovaries are intact. In women in whom the ovaries have been removed both estrin and progesterin are indicated. Where the ovaries are present corpus luteum alone has given the best results in our experience.

OVARIAN TUMORS WITH ENDOCRINE INFLUENCE

These are mentioned because of their importance in any endocrine consideration of pelvic function. These tumors should be ruled out before any endocrine treatment is considered. There are two types of pelvic tumors possessing endocrine influence, granulosa cell tumors and arrhenoblastomas. Both arise from nests of embryological cells which suddenly begin to multiply and function. The granulosa cell tumors manufacture estrin and cause an excess of this hormone in the body. The symptoms vary with the age of the patient. In early life the child has a premature puberty and regardless of age begins to menstruate, the pubic hair and the breasts develop. With the removal of the tumor the child again becomes normal. In the child-bearing period it may cause excessive bleeding. In the menopause it causes sporadic periods of bleeding. When curettage shows no malignancy in cases of postmenstrual bleeding a granulosa cell tumor is usually the underlying cause. The arrhenoblastomas arise from remnants of testicular tissue left in the ovary during its early embryological development. As would be suspected these cause masculinization of the patient causing amenorrhea, atrophy of the breasts, development of the clitoris, masculine hair distribution and a lowering of the vocal pitch. Removal of the tumors causes the return of all the feminine and a loss of the masculine characteristics.

DANGERS OF INDISCRIMINATE USE OF POTENT HORMONE PREPARATIONS

These dangers are mentioned as a word of caution. It has been shown experimentally that excessive amounts of estrin may be a factor in the development of carcinoma of the breast, cervix uteri and fundus uteri, therefore prolonged administration of large doses should be avoided.

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HYPERVENTILATION IN ABDOMINAL SURGERY

Thomas J. Ryan, Philadelphia (Journal A. M. A., July 25, 1936), made a study of 411 abdominal operations to determine the value of carbon dioxide inhalations during closure of the abdomen. It would appear from this study that carbon dioxide is of no value in the prevention of postoperative pneumonia.

THE LOOSE KIDNEY PROBLEM AND THE GENERAL PROFESSION

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ST. LOUIS

The loose kidney problem used to be settled more simply and possibly more effectually than it has been done latterly and there was less talk about it; the offending organ was summarily removed. In 1887 a surgeon named Bouilly thus relieved two patients who had been bedridden respectively for eight and sixteen years. It is noteworthy, however, that a mortality of 25 per cent is recorded as accompanying this method of cure. But in 1881 a spirit of conservatism made itself evident when Hahn of Germany was the first to plan and carry out deliberate suspension of such a kidney. One reason he did that instead of extirpating it was because he suspected a stone in the opposite organ and feared to leave one the sole guardian of kidney function. This and other subsequent nephropexies established the efficacy of this more conservative procedure, and its safety was measured by scarcely any mortality attending the anchoring when carried out by capable surgeons. The subsequent history of nephropexy, as related by Mathe,¹ reads like a romance. In the years that followed a vogue, almost a furore, for operating on movable kidneys ensued. It was done and overdone.

Because it was simple and had no mortality and because many cases were relieved of invalidism and suffering that had existed for months or years, nearly every ambitious surgeon entered the lists and operated on every case of movable kidney he could get his hands on. And in many instances getting his hands on a loose kidney was all he required for proposing operation to a patient complaining of any kind of abdominal pain. The criteria for operating which are demanded at the present time were then not even thought of. A record of numerous cases was the objective of these rampant speedsters. And many different modes of anchoring the kidney were proposed; the array was bewildering in number and ingenuity. It seemed that every surgeon wanted his name attached to a new and different plan of operating and the more complicated and puzzling the method the prouder was its author. That, really, was a saving grace in that it barred from participation in the game many who would have been lost in the mazes of its solving. A Chinese puzzle was less formidable than some of these proposed operations.

The popularity of nephropexy became so

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great that, as mentioned, it became overdone. It was used even as a finishing and artistic touch to abdominal operations done for other purposes. Hence the very popularity of nephropexy plus its misapplication led to its downfall, so that now for nearly a decade it has been under a cloud of disfavor, even of discredit.

But a new era has made itself manifest in the last few years, ushered in and really developed by the urological contingent of surgery on the basis of more exacting requirements in diagnosis, and the more certain methods of investigation supplied by the cystoscope and the roentgen ray. The old time laying on of hands (palpation) for diagnosis is no longer relied upon as a determining factor. That step is only the beginning of a series of expedients which before ending provide a clean cut and indubitable basis for determining (1) that the loose kidney is causing the pain and other symptoms of which the patient complains; (2) that these symptoms can be aroused by obstructing the ureter or overfilling the kidney pelvis of the side involved; (3) that preventing or relieving obstruction of drainage through the affected ureter prevents or relieves the pain and other symptoms, and (4) these signs are reinforced by cystoscopic and roentgen ray evidence that makes the diagnosis practically impregnable and justifies nephropexy for permanent relief.

The credit of redeeming this surgical work to favor and respectability I think must be accorded to modern urologists who have not only recognized the faults of the older régime, its lapses in diagnostic methods and results and its inadequacies in respect to operating, but have furnished the methods and means for attaining that redemption. They have realized the wonderful value for relief embodied in this work, have believed it worth fighting for, have made the fight and have won it. Nephropexy on a more reasonable and conservative basis is re-established but, unfortunately, too many of the general profession do not know it. They are still thinking of it in terms of the gay nineties; they decry it, not only to brother practitioners but also to patients who may have been suffering for months or years from tortures and are desirous of obtaining operative relief. Many such patients are frightened away from relief by the very ones who should be their guardians for health and comfort, their family physicians.

In order that I might not find myself in error in respect to this pessimistic impression received from numerous personal conversations with brother practitioners as well as with patients, I asked my friend, Dr. James M. McNish, to give me his impression of the attitude of the profession on this subject based on his opportunities of contact with many of the profession

incidental to his several years of service as resident physician at St. Louis City Hospital. His answer follows:

As resident in the City Hospital for three years, I came in daily contact with a large number of visiting physicians and surgeons as well as a constantly changing group of recent graduates, our interns. It has been my impression that these men as a whole are quite indifferent or, indeed, apathetic toward nephropexy, a pathological entity the importance of which is recognized by the urologists. In the recent graduate this situation may be explained by lack of acquaintance with the vast amount of work being done in this field. In the older men I believe it is more a matter of skepticism and reluctance to accept ideas brought forth by reasonable urological investigations. There seems to be a generalized idea that nephropexy is growing less and less popular after a wave of enthusiasm for it in the earlier years of this century.

I contend that the medical profession is or should be the perennial guardian and director of matters pertaining to the health of the people and if it grows lax or apathetic in its guardianship serious results are sure to follow. Dr. Newell Schlueter, dermatologist on the staff at St. John's Hospital, gave me the interesting details of a smallpox epidemic that occurred in Los Angeles in 1925 and 1926. In the years 1918 to 1921 compulsory vaccination prevailed, and in all those years only 513 cases of smallpox were recorded. In 1921, the apathetic attitude of the medical profession permitted the passage of a bill abolishing compulsory vaccination. In the ensuing four years, instead of 500 smallpox cases, there were over 5000 with the loss of 166 lives in 1926 alone and the expenditure of half a million dollars in the campaign to suppress the disease until compulsory vaccination was restored. Within two months more than 400,000 persons were vaccinated and the epidemic was finally stamped out. That lesson should last a long time as evidence of the cost of apathy or indifference on the part of the natural watchdogs of health. Think of the disaster to humanity that would follow the doing away with vivisection or experimental research in animals! And who but our profession is going to prevent such a calamity?

Skepticism as well as apathy prevail in many members of our profession with respect to the benefit to be derived from surgery in movable kidney; and this, notwithstanding the great and convincing mass of favorable reports on such work that have been made by surgeons in all parts of the civilized world, even in the last five years. This testimony seems to be overlooked or ignored and apparently makes no impression on the doubting Thomases of the profession. They have maintained that nephropexy is a failure; that is their story and they are going to stick to it! Meantime, we have the recitals with the details of recovered cases, roent-

gen ray evidence, etc., from such recognized surgeons as J. J. Bell, J. C. Birdsall, Dougal Bissel, Burford and Glenn, A. Campatelli, P. Cifuentes, Chevassu, Clyde L. Deming, W. L. Downing, C. Emerson, P. Gelfer, T. H. Hammond, Frank Hinman, Boyer Heitz, K. Horie, P. Janssen, Barron Johns, A. Jurozz, Frank Kidd, M. Klika, A. Ladwig, Legueu, Bransford Lewis and Grayson Carroll, Oswald Lowsley, E. Marion, Chas. P. Mathe,¹ Viraved, Vincent O'Connor, L. Pansin, E. Papin, A. H. Peacock, G. Pisano, B. Rado, J. R. Reeves, Augustus Riley, Juan Salleras, A. J. Scholl, A. Rendle Short, J. Bentley Squier, J. R. Stamper, B. A. Thomas, Ledon Uribe, Van Gulik, Vecki and Johnson, A. von Lichtenberg and Vozenilek.

It is noteworthy that practically all of the open discussion and direct evidence about nephropexy come from those who are conscientiously working with it and bringing success out of it while the contrary views emanate from hearsay evidence of nonparticipants. They have heard of this or that failure and promulgate it as a fact when the failure very possibly relates to a failure of the operator to correctly diagnose the case, having failed to carry out the exacting requirements for diagnosis previously alluded to. It is, therefore, a failure of the operator rather than of the operation.

If the operator anchors a kidney when he



Fig. 1. Mrs. L., aged 46; symptoms twelve years. Roentgen ray in supine position shows no ptosis of right kidney.



Fig. 2. Mrs. L., roentgen ray taken in upright position shows marked descent of dilated right kidney, together with sharp kinking of ureter obstructing urinary flow. Complete recovery followed nephropexy.

should remove a stone from that kidney or ureter, or removes an inflamed appendix or a collection of gall stones, is that the fault of the nephropexy that is erroneously carried out? I am tempted to make the broad assertion that practically all so-called failures in nephropexy should be ascribed to the operator rather than the operation; and criticisms should be directed accordingly.

But why this persistent objection to nephropexy? Can the "conscientious objectors" claim that it is dangerous? Is there an unreasonable mortality connected with it? Edebohls reported a mortality of only 1.65 per cent in 864 cases. Hence, I say that from the danger standpoint there is nothing to justify the continued criticism and skepticism coming from the profession.

Are the patients damaged in any way by nephropexy, or deprived of any function or organ? Not at all. Conservation is the basis on which it was developed, its reason for being.

Instability? Relapses? Disappointment? Probably they are 90 per cent propaganda or whispering campaign. Exceedingly few kidneys break away from their anchorage and actually relapse.

In a few instances operators have had the opportunity to explore the abdomen after nephropexy and they found the organ so firmly fixed that detachment would have been difficult. So



Fig. 3. Mrs. H., marked pyonephrosis and descent of right kidney to brim of pelvis; symptoms for eight years. Nephropexy.

much for physical relapse of a ptosis. It is possible but it seldom occurs.

As to the return of symptoms after anchoring, that involves other questions that must be solved in each individual case. They relate chiefly to diagnosis, neuroses, complexes, etc.

Disappointment: Dr. J. W. Larimore² in an excellent review of the results of appendectomy in chronic appendicitis said that the consensus of opinion among such surgeons as Lichty, Stanton, Ehrlich, Bettmann, Carnett, Boles, Harris, Case, Blackford, and Dwyer, was that 40 per cent of appendectomies failed to relieve the symptoms for which they are done. This in itself, as Dr. Larimore says, is a severe indictment of appendectomy. And yet we do not hear a far-reaching cry from the profession that appendectomy is a back number and should be omitted from surgical practice even though it has a recognized mortality far larger than nephropexy. Moreover, if there is 40 per cent failure of relief in appendectomy, nephropexy should be allowed a paltry 5 or 10 per cent of failure which might be conceded by urologists.

On the other hand, we can point to thousands of recovered cases, mostly women who have suffered for months or years from pain, invalidism and digestive disturbances that have proved beyond relief by other methods of treatment.

Would the critic of nephropexy have deprived all of these women their opportunity of relief merely because they could be promised only a probable 90 per cent of success? A 90 per cent probability of success and recovery compared to a 10 per cent probability of failure seems, under the circumstances to me to be a very attractive proposition.

In 1928, Mr. Wm. Billington,³ Professor of Surgery in the University of Birmingham, England, presented a most convincing, as well as conservative review of the results in 2000 nephropexies which he performed on 1500 patients, in many of the cases both kidneys being replaced during the previous twenty-five years. Not a death in the whole series! On writing to one hundred of the patients operated on at least a year after their operations eighty-seven responded directly. Of these 60 per cent reported well and needing no more medical attention; 20 per cent were much improved; 10 per cent were better, while 10 per cent were no better. In other words, if the same percentages were followed in the 1500 patients there would be 1200 of them either well or much improved, while 10 per cent or 150 would be no better, or just where they started. But the author mentioned that the latter part of his series furnished



Fig. 4. Same case as figure 3. Roentgen ray taken four weeks after nephropexy shows kidney in proper location and position with restoration of normal markings of calices and kidney pelvis; ureter straightened affording good drainage. Complete recovery.

much better results than the earlier part due to added experience and observation. In not a single instance of these 2000 nephropexies did Billington find a renewal of ptosis of an anchored kidney.

The mention of a few cases together with their roentgen ray findings before and after nephropexy may serve to illustrate the modern requirements for diagnosis, the mechanism of pain production and the reason for the relief obtained by the operation.

CASE REPORTS

Case 1. Mrs. H., aged 54, referred by Dr. Wm. H. Vogt, April 10, 1928. Symptoms eight years; pain in right renal region. Right kidney opposite the pelvic brim; dilated kidney pelvis and ureter. Nephropexy May 3, 1928. Pyelogram taken a month later shows kidney in normal position, calices restored, pelvis reduced to normal size, ureter straightened. Patient relieved first time in eight years.

Case 2. Mrs. J. S., aged 52, referred in 1931 by Dr. L. M. Riordan. Symptoms ten years, pain, nausea and vomiting. Pyelogram (supine) showed dilated kidney pelvis, obliterated calices, sharply kinked right ureter immediate cause of obstruction and pain. Upright, further depression of kidney and obstructing ureter. After nephropexy kidney restored to proper location and position, pelvis decreased in size, ureteral kink removed affording good drainage, no more attacks of pain or vomiting.

Case 3. Mrs. J. G., aged 38. Symptoms a year and rapidly growing worse. Marked hydronephrosis in the depressed right kidney explained by the sharp kinking of the ureter below it. Nephropexy June, 1926, with complete relief maintained to the present time (10 years). After operation; straightened ureter, kidney in proper location and position and its pelvis much restored. After 10 years of recovery patient is one of our most ardent and appreciative supporters.

Case 4. Mrs. N. L., aged 46. Symptoms 12 years. Kidney replaced repeatedly by an osteopath who finally met with failure in that effort and the husband called Dr. Carroll. The obvious diagnosis was confirmed by

pyelograms which showed the wide mobility of the kidney in the upright position as compared with the supine and also kinking of the ureter and beginning hydronephrosis. Nephropexy, September 18, 1928, promptly gave entire relief and the osteopath's services have not since been invited to replace the kidney.

Case 5. Mrs. H., aged 58. Kidney, supine, low and beginning hydronephrosis; upright, same right kidney down in the pelvis. Nephropexy in 1927. Recovery.

Case 6. Bilateral movable kidney in a male patient. Descent of both kidneys and tortuous ureters. Girdle gave relief.

Case 7. E. O., a girl 4 years old, referred for pyelitis by Dr. Joe Costello in 1928. Pyelogram showed congenital ptosis of left kidney into the pelvis with the corresponding ureter so short that replacement of the kidney was impossible. Ureteral catheterization repeated several times with lavage gave relief.

Case 8. Mrs. T., aged 44, arrived in 1925 from Oklahoma. Symptoms five years. Markedly loose and ptosed right kidney with dilated and kinked ureter. Relieved by an abdominal binder. Refused operation.

Case 9. Mrs. L. Only one kidney (left) the other having previously been removed by operation. Dilated, kinked and looped remaining ureter, pyonephrotic kidney. Nephrostomy-drainage was the only operative expedient left for this case. Early nephropexy would doubtless have saved both kidneys.

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TREATMENT OF VARICOSE VEINS WITH 2 PER CENT SODIUM RICINOLEATE

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In choosing a sclerosing agent for the obliteration of varicose veins one must bear in mind two primary requirements; namely, the agent must be nontoxic and must be effective. The toxicity of a sclerosing agent may be evaluated in many ways. The first consideration is whether or not it in itself will cause a toxic reaction within the organism.

In addition to the systemic toxicity, sclerosing agents should be chosen which demonstrate the least possible local reaction and the least number of general systemic reactions due to its presence merely as a foreign body.

Another important point which must be taken into consideration is the formation of the proper kind of thrombosis in the vein. Some agents act quickly and without pain but do not form the type of thrombosis which adheres to the intima of the vein and which is so friable that parts of the thrombus may break off causing an embolism in one of the other organs of the body.

It is well also to consider the effect of the in-



Fig. 5. Mrs. L., aged 23. Only one kidney and that one pyonephrotic and dependent on a dilated, looped and kinked strictured ureter. Early nephropexy would probably have saved both kidneys.

advertent administration of some of the sclerosing material outside the vein. Many solutions which are strong enough to produce an adequate sclerosis are apt to cause a perivascular inflammation and slough if administered to any extent outside the veins. The effectiveness of sclerosing materials must be considered from the standpoint of complete obliteration of the vein with a low percentage of recurrence.

Froehlich¹ reported a series of 300 cases in which he used a 5 per cent solution of sodium ricinoleate with comparatively few signs of toxicity. He reports that the only signs of toxicity experienced in this series of cases were appearances of irregular red blotches appearing in the skin drained by the offending vein. In two cases he reports a localized urticaria.

None of the cases reported by Froehlich or by Riddle² showed any signs of toxicity from the drug, sodium ricinoleate. The toxic reactions noted were few and those were due to the presence of sodium ricinoleate in the vein as a foreign substance.

Believing that a lower concentration of sodium ricinoleate would be as effective as the 5 per cent, it has been made possible to secure for experimental purposes a 2 per cent solution in distilled water, the pH of which has been adjusted to 8.0. In our preliminary experimentation we found that the 2 per cent solution is a powerful hemolytic agent which forms a jelly-like coagulated mass resisting resolution and absorption for a comparatively long time. It is this resistance to resolution and absorption which we believe makes the 2 per cent sodium ricinoleate superior to other sclerosing agents. The thrombosis which is formed is not only adherent to the intima of the vessel but is of such consistency that the small arms of the thrombosis going into the adjacent venules aid in its fixation in the vein.

It has been reported³ that sodium ricinoleate is approximately 97 or 98 per cent pure sodium ricinoleate, contaminated only with small amounts of sodium oleate and sodium linoleate. These contaminating salts have been shown to possess the same physiological properties as the sodium ricinoleate. Therefore, their presence in the solution is not harmful.

Experimental work (private communication) conducted in another laboratory and reported to this clinic by correspondence, indicates that sodium ricinoleate injected into the vein of a rabbit's ear causes a complete destruction of the intima of the vein with a profuse perivascular infiltration and a subsequent resolution of the thrombosis, completely obliterating the vein with little if any chance of recanalization.

Although the series of cases reported is comparatively small, it is felt that they are of such

outstanding value clinically that a fairly accurate picture of the value of the clinical use of 2 per cent sodium ricinoleate may be obtained. In all of the cases reported it will be noted that only small amounts of the solution were used and that repeated injections were made. It is the opinion of this clinic now, and has been since the introduction of sclerosing materials, that the clinical end result and the safety to the patient are enhanced by the more frequent injection of small quantities of sclerosing solutions; this is in contradistinction to those clinicians who make one single injection with sufficient material to sclerose the entire varicosity. It has been the experience in this clinic also that in individuals whose varicosities were resistant to other sclerosing agents or which recurred after the administration of other sclerosing agents, an excellent end result was obtained after the use of sodium ricinoleate.

REPORT OF CASES

Case 1. M. R. Complained of varicose veins in both legs with a severe pain in the left leg and left ankle. Examination disclosed a varicosity extending from the middle third of the right thigh to the middle third of the leg. On the left leg there appeared a small varicose ulcer 1 inch in diameter on the anterior lateral surface of the ankle with varicosities below and above the ulcerated area. Injections of from 1 to 2 cc. of 2 per cent sodium ricinoleate were made in either leg at intervals of seven to ten days during a period of six weeks. Following these injections the ulcerated area healed completely and there was a complete obliteration of the varicosities. It should be noted in this case that one injection of 1 cc. of solution was made in the varicosity distal to the ulcerated area.

Case 2. A. S. States that she had varicose veins in both legs since her first child was born thirty-five years ago. Examination showed that there were large tortuous varicosities in both legs extending from the upper third of the thighs to the ankles. This patient was treated intermittently for five months with 2 per cent sodium ricinoleate in 1 to 3 cc. doses. A total of 11 cc. given at four different times was injected into the right varicosity and a total of 7 cc. given at four different times was injected into the left varicosity. At the end of the five months the varicosities had completely disappeared.

Case 3. M. L. This patient has had varicose veins in both legs since the birth of her first child eighteen years ago. Examination disclosed a varicosity of the external saphenous extending from the middle third of the right thigh to the ankle. There were few small varicosities of the left leg. Sodium ricinoleate, 2 per cent solution, was used in the obliteration of these veins. One cc. was injected into the small varicosity of the left leg with complete obliteration of that vein. A total of 9 cc. over a period of five weeks was injected into the right varicosity. After the second injection the patient complained of a moderate amount of pain immediately after the injection with severe pain and soreness for two or three days. At the present time the varicose veins have practically disappeared and the patient has no discomfort except an occasional mild cramping of the foot at night which is immediately relieved upon standing.

Case 4. L. S. This patient's weight of 216 pounds is

evidently of endocrine origin. She complained of swelling of the limbs for the last six years with "breaking out in places with pus which were healed after duration of about two months." There was some pain and aching in both legs, especially when on her feet. Examination disclosed an enormously obese individual with large legs and many veins over both thighs and legs. Many areas of sunburst type of varicosity were observed. There was a brown discoloration on the anterior surface of both legs above the ankles. To date, only the left leg in this case has been treated. During the second injection of 2 cc. of 2 per cent sodium ricinoleate a small amount of solution was inadvertently allowed to remain outside the vein. Following this there was a slough the size of a half dollar. A total of 11½ cc. was used in sclerosing the left vein, given at weekly intervals for a period of five weeks. At the end of this time the slough had completely healed and there was an obliteration of the veins of the left leg. It should be noted that after the obliteration of the larger veins of the leg many of the sunburst type varicosities voluntarily disappeared.

Case 5. E. C. This patient complained of varicose veins for last thirty-five years following delivery. For the last fifteen years she has had an occasional varicose ulcer which always healed with proper care, some requiring one year to heal. There were pains and aches in both legs, worse at night. Varicosities started in the upper internal surface of both legs extending to the ankles. There was an ulcer the size of a quarter on the exterior anterior surface of the right leg above the ankle. There was a large dark brown area covering one half the circumference of the leg above the anterior surface above the ankle in both legs. A total of 4 cc. of 2 per cent sodium ricinoleate over a period of four weeks was injected into the right leg. Two cc. of 2 per cent sodium ricinoleate was injected in the varicosity in the upper third of the left thigh. Three months later, at her return to the clinic, the ulcer had healed without the usual rest in bed, the varicosities disappeared and the patient stated that she had no more pains and aches in either leg.

Case 6. I. D. This patient complained of a varicose vein for the last ten years in the right leg following birth of her second child. She states that there has occasionally been some swelling of the right ankle. Examination showed a varicose vein in the right leg on the inner surface extending from the knee to the ankle. This patient was given a total of 4½ cc. of 2 per cent sodium ricinoleate over a period of two weeks. At the end of three weeks 3 cc. of 3 per cent sodium ricinoleate was injected into the upper third of the varicosity of the right leg. Immediately following this injection of the 3 per cent solution there was a severe pain from the source to the bottom of the feet. This discomfort persisted for two days. Examination two weeks later, however, disclosed that the varicosity of the right leg had disappeared and there was no pain, and the swelling of the ankle had not been evident for several weeks.

Case 7. W. K. Complained of varicose veins for the last twenty years. For the last ten years both legs have been very painful, especially at night, with some swelling of the right leg. Examination of this patient disclosed varicosities in both legs extending from the upper third of the thighs to the ankles. In this particular case two sclerosing solutions were used, 2 per cent sodium ricinoleate solution and varisol. On November 20, 1935, 10 cc. of varisol was injected into the interior surface of the lower half of the right leg and 1 cc. of 2 per cent sodium ricinoleate into the anterior surface of the lower left third, of the thigh. On

January 27, 1936, 5 cc. of sodium ricinoleate was injected into the lower left third of the left thigh and 10 cc. of varisol in the upper left third interior surface of the right leg. On December 4, 1935, 8 cc. of varisol was injected into the inner surface of the lower third of the right thigh. On December 11, 1935, 1 cc. of sodium ricinoleate was injected into the left leg and 5 cc. of varisol in the right leg. On January 8, 1936, 5 cc. of varisol was injected into the right leg and 2 cc. of 2 per cent sodium ricinoleate into the left leg. At this time examination of the varicosities disclosed that in the right leg which received varisol the varicosities showed the same improvement but there was soreness along the injected veins. The left leg showed equal improvement and had no soreness at any point along the injected veins. On January 22, 1936, 3 cc. of varisol was injected in the interior surface of the right leg and 2 cc. of 2 per cent sodium ricinoleate in the inner surface of the left thigh just above the knee. On February 5, 1936, 2 cc. of sodium ricinoleate was injected into the anterior surface of the middle third of the right leg. On April 21, 1936, 2 cc. of 2 per cent sodium ricinoleate was injected into the inner surface of the right thigh in the lower third and 2 cc. of 2 per cent sodium ricinoleate in the inner surface of the lower third of the left thigh. At this time the varicosities of both legs have disappeared. The patient complains of no more pain except a slight soreness which persisted for several months following the varicose vein in which varisol was injected.

Case 8. J. H. This patient complained of varicose veins in both legs for the last several years. He stated that the left leg had been treated by injection one year ago. There was pain in the left knee joint with no swelling of the ankles. Examination disclosed varicose veins of the right leg extending from the knee to the ankle posteriorly. Three and one half cc. of 2 per cent sodium ricinoleate was injected over a period of two weeks into the varicosity of the right leg. Two cc. of 2 per cent sodium ricinoleate was injected into the posterior surface of the middle third of the left leg where recanalization had occurred. After six weeks the pain was entirely gone from the left knee. The varicosity of the right leg and that of the left had completely disappeared.

Case 9. E. W. This patient, aged 60, has had varicose veins in both legs following an attack of typhoid fever at the age of 30. He complained of no pain nor aching in the legs. Examination disclosed eczematous areas completely around each leg above the ankle with small varicose veins below the knee of both legs. Two cc. of 2 per cent sodium ricinoleate was injected in the middle third of the inner surface of the right leg. A total of 5 cc. of 2 per cent sodium ricinoleate was injected into the varicosity of the left leg over a period of two weeks. The eczematous areas have started to involute and the patient is much improved.

In another group of five patients treated in the same clinic with small areas of varicosity, varying amounts of from 1 to 4 cc. of 2 per cent sodium ricinoleate were injected with excellent results.

All the above cases have been treated at the Varicose Vein Clinic at the Alfred Benjamin Dispensary, Kansas City, Missouri.

DISCUSSION

In a group of nine cases reported in detail, together with the five reported together it was

found that the incidence of reactions and pain following the use of sodium ricinoleate was much lower than that following the use of other sclerosing solutions in this clinic.

In the few complications of varicosities such as varicose ulcers and eczematous areas around the ankle, it was noted that these had a tendency to involute much more rapidly than had previously been known. In all cases treated the end result was represented by a cord-like substance occupying that space formerly taken up by the varicose veins. The length of time from the inception of the treatment with the 2 per cent sodium ricinoleate has not been sufficiently long to determine whether or not recanalization occurs. It is our belief, however, that the percentage of cases in which recanalization will take place will be materially reduced by the use of 2 per cent sodium ricinoleate.

CONCLUSIONS

1. Fourteen cases of varicose veins are reported after being injected with varying amounts of 2 per cent sodium ricinoleate solution.

2. It is our opinion from the results obtained in this group of cases that the 2 per cent sodium ricinoleate is sufficiently active to produce adequate sclerosis without the danger of recanalization.

3. We have found that the repeated injection of from 1 to 3 cc. of the 2 per cent sodium ricinoleate solution at different levels of the varicose vein is preferable to the injection of a larger amount at one injection which was tried in a previous series of cases.

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DIFFERENTIAL DIAGNOSIS OF SALICYLATE POISONING AND DIABETIC ACIDOSIS

Salicylate poisoning, according to Bryon D. Bowen, Joseph F. Roufa and Orris W. Clinger, Buffalo (*Journal A. M. A.*, July 25, 1936), appears to be a clear clinical entity, but one that may be confused with diabetic or renal acidosis. Salicylate poisoning should be considered when one is eliminating the various causes of coma, especially if hyperpnea is present. The finding of the violet color reaction in the spinal fluid with ferric chloride may be a useful differential diagnostic procedure; it would have been in their case. Physicians should be acquainted with the syndrome produced by the overdosage of salicylate, especially since the drug is so widely used, in its various forms, as a therapeutic agent, a household remedy, and a method of suicide. The dyspnea of salicylate poisonings appears to be more reasonably explained on the basis of an irritative action on the respiratory center than on acidosis.

MAJOR COMPLICATIONS OF INTRA-VEIN THERAPY OF VARICOSE VEINS

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I believe it will be generally conceded that the results obtained from the operative procedure of varicose veins are not so satisfactory as we would like to have them. Any condition wherein an unsatisfactory situation of this kind exists usually brings about a search in an attempt at better results. During recent years the intravenous therapy of varicose veins has again been brought forth in an attempt to improve the end results of varicose vein therapy. As you know, this method of treatment is not new and actually dates back to 1854. It is a revival of an old procedure which is rapidly being accepted and is replacing the operative method. Some proponents of the surgical procedure feel that this move is a return to the dark ages in medicine, while the advocates have gone so far in some instances as to have one believe that the injection method is a panacea for all cases of varicose vein pathology. It is not surprising that one might obtain such an erroneous idea from the literature which has been written on this subject, which is certainly most impressive. Reading such reports as given by McPheeters and Rice³ wherein a series of 53,000 cases were treated, with seven cases of possible pulmonary embolism occurring; likewise, the series reported by Von Karsten Kettel⁸ of 60,000 cases with ten deaths due to pulmonary embolism; and even more impressive is the series of 120,000 injections in 15,000 consecutive cases without a mortality reported by Sicard and Gaugier.⁴ It is, therefore, easy to understand how a method which has such favorable end results with so little apparent danger would rapidly replace the surgical method which carries along with it a much greater mortality, expense, discomfort and inconvenience to the patient. These favorable reports we do not in any way doubt. We do feel, however, that the occurrence of serious complications has not been stressed sufficiently. There have been occasional reports in the literature concerning untoward results, such as the series of fatalities reported by Silverman⁵ in which he reports nineteen deaths with the exception of one of his own and three nonfatal cases. This, I believe, is the largest series of pulmonary embolism reported in any one article.

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It is our conception that perhaps a great number of physicians using this method might easily underestimate the possible serious events that may happen in the course of this treatment. It is with this in mind that we have been tempted to report some of the more serious complications occurring in the course of this treatment, both in our experience and in the work of others.

The injection therapy of varicose veins was started at the Jewish Hospital about six or seven years ago. The work was carried out chiefly by Dr. Lowenstein and myself. During this period of time we have had approximately 150 cases which have been submitted to treatment in our clinic. Every patient admitted for treatment was given the routine physical examination to rule out any of the possible contraindications for this procedure. The technique used was that recommended by McPheeters, Geza de Takats¹ and others who had been doing this work for a longer period of time. There have been many minor complications, such as small sloughs, which usually occurred from the use of sodium salicylate. Excluding the great length of time that this condition would require to heal we did not encounter any serious complications. There were some cases of severe venitis and perivenitis but they were handled without any great discomfort or concern. It is on the major reactions and complications that we are chiefly anxious to report, first because of the apparent danger to the patient and second because of the temporary mental anguish and discomfort to the attending physician.

REPORT OF CASES

Case 1. The first case in which we met with any great difficulty was Miss M., aged 40, who entered our clinic in June, 1929. She had been examined in the medical clinic and referred for the injection treatment of varicose veins. The patient revealed a moderate degree of varicosities on the left leg. The Trendelenberg test was carried out and she was found to be suitable for treatment. In this case invert glucose was used. The patient received four injections, one week apart, which were carried out in the usual manner without any difficulties. On her fifth injection, which was performed in the usual manner, a period of one minute elapsed after the completion of the injection when the patient commenced to complain of inability to breathe due to a sense of pressure in her chest. This discomfort in her chest seemed to radiate to her back, between her shoulder blades; her respiration became rapid and she turned an ashen grey complexion. She vomited, pulse became feeble and irregular, blood pressure fell to 60/40, she began to perspire and to all intents and purposes looked critically ill. The pain increased in severity, her pupils dilated and we administered $\frac{1}{4}$ grain of morphine sulphate and $7\frac{1}{2}$ grains of caffeine sodium benzoate and covered her with blankets. After a period of 30 or 45 minutes the pain became less intense, her pulse became more regular and more perceptible and her blood pressure rose to 100/80. Examination of her chest revealed moist rales through-

out. She was kept in the clinic for several hours and although we tried to persuade her to enter the hospital she refused to do so and went home. This was our first serious complication. Needless to say, we became somewhat alarmed. Our first impression was that she had a pulmonary embolism but on second thought we classified this as a severe anaphylaxis due to glucose. This patient never returned to our clinic nor did we hear from her again and, therefore, the diagnosis remained somewhat undetermined.

Case 2. Mr. S., aged 52, was treated by Dr. Lowenstein in our clinic. Treatment was started on August 3, 1933, sodium morrhuate being used, from $\frac{1}{2}$ to 1 cc. being injected at a time. He was discharged from the first course of treatment on April 14, 1934, as being cured and was asked to return in three or four months, which he failed to do.

On July 9, 1935, the patient returned with some recurrences in the left leg. He was again injected with 1 cc. of sodium morrhuate. Following an injection on September 3, 1935, the patient had an aching over the entire body and had a very peculiar feeling as though he would die, evidently an allergic reaction. There was no pain in the chest and no change in pulse. Treatment was postponed until October in view of possible allergy. He was sent to the allergy clinic for a patch test which was negative. The upper saphenous needed further injection and, in view of the negative patch test, $\frac{1}{2}$ cc. of 10 per cent sodium morrhuate was given in the saphenous in the mid thigh. The patient was observed for five or ten minutes in our clinic and after he seemed to be well and that no reaction would occur he was allowed to leave. He left the clinic and walked to the street corner for a bus. While standing at the corner he began to feel very faint and collapsed on the street. He was brought into our emergency room where Dr. Lowenstein was still available and saw him immediately. The patient was cyanosed and the radial pulse was absent. His blood pressure was unobtainable; he was cold and clammy and covered with profuse sweat. Adrenalin 1:1000 was given intramuscularly and repeated. Caffeine and sodium benzoate were given intramuscularly and oxygen inhalations administered. The patient was admitted to the hospital where the following findings were obtained:

Hospital Note.—On entering the hospital the patient was cyanotic, his blood pressure was 100/60, his EKG showed a sinus arrhythmia and left axis deviation. His RBC was 4,500,000; WBC 9150, and eosinophiles 7 per cent. There were essentially no other findings and a diagnosis of allergic anaphylaxis was made. The patient left the hospital on the second day. After he left the hospital he still complained of occasional headaches. His blood count was essentially normal except that he still had 7 per cent eosinophiles. His EKG showed a sinus arrhythmia. He would not submit to further injections and has not returned.

Case 3. Mrs. N., aged 40, was referred to the varicose vein clinic on April 9, 1930. She had marked varicosities in the right leg extending up to the right knee. Her previous history was essentially negative. She had been examined by the medical department and found to be suitable for injection therapy and 3 cc. of 30 per cent sodium salicylate solution were injected into the right leg. No clot formed. Five days later the patient returned with no satisfactory result and 5 cc. of 30 per cent sodium salicylate solution were given in the right leg with a good result. She returned on April 28, 1930, and 5 cc. of 30 per cent sodium salicylate were injected into the left leg in the usual manner. A few seconds after this injection the patient complained of a pain radiating up the leg to the knee. This

is so frequently associated with sodium salicylate injections that little attention was paid to her complaint, but a nurse was instructed to watch the patient until relief of pain was obtained and we proceeded to attend another patient. About three minutes after the injection had been finished the patient commenced to call for help, stating that she was having a severe pain in her chest characterized with a sense of heavy pressure which radiated through to her back. She said she felt that she was going to die and called for her family. She was pale, her skin became clammy and cold and she vomited profusely. Her pulse was hardly palpable at the wrist and the stethoscope revealed the heart tones to be distant and somewhat irregular. Her blood pressure was not obtainable. There was no loss of consciousness. The pain became increasingly more severe and the patient lay limp and helpless and took on all the appearances of one who is very ill. There were rales in her chest. Morphine $\frac{1}{4}$ grain was given immediately with 1 cc. of adrenalin intramuscularly. After about twenty or thirty minutes of anxious observation the patient was sent into the hospital with a diagnosis of pulmonary embolism.

Hospital Note.—This patient was admitted to the hospital still somewhat cyanotic. Her pulse ranged between 90 and 100. Her blood pressure was 90/70. She lay limp and helpless. There were a few crackles in her left base. That night the patient spit up a small amount of bright red blood. A roentgen ray revealed a possible pulmonary fibrosis suggestive of an influenzal bronchial pneumonia. Her EKG, urinalysis and blood count were essentially negative. After remaining in the hospital for four or five days the patient was discharged with a diagnosis of possible pulmonary embolism.

This patient was a very unusually cooperative individual and in July of the same year she returned for further injection therapy. Sodium salicylate was again administered in 20 and 30 per cent solution without any untoward reaction until the remaining veins were occluded.

Case 4. Mrs. W., housewife, aged 31, was referred to the varicose vein clinic for treatment on December 31, 1932. She had been examined by the medical department and found suitable for injection therapy. There was a questionable lues. A Kahn test was negative. Upon examination she was found to have large varicose veins with an associated dermatitis of the right leg. She was injected on December 28, 1932, with $\frac{1}{2}$ cc. of sodium morrhuate into the right leg. The patient developed a moderate perivenitis following this injection and one week of rest was given until the pain became less intense. On January 18, 1933, another $\frac{1}{2}$ cc. of sodium morrhuate was injected, the dose not being increased because of her previous severe reaction. She had a good result from this last injection. Following this injection the patient developed a cold and for that reason she did not return for treatment until February 20, 1933, when 1 cc. of sodium morrhuate was injected into the right leg with good results and no untoward reaction. On March 8, 1933, another injection of 1 cc. of sodium morrhuate was injected into the left leg and she informed us that subsequent to this injection she developed a headache, felt chilly and somewhat nauseated. We felt that this might have been allergic, but proceeded with another injection on April 17, 1933, decreasing the dose to $\frac{1}{2}$ cc. of sodium morrhuate in view of her reaction to the previous injection. Approximately five minutes after this injection was completed without any difficulty the patient commenced to complain of severe pain in the region of the sternum and back. The pain seemed to be pressing in character as if her chest were in a vise and the pa-

tient said she could not breathe. She tried to vomit and became cold, clammy and cyanotic. Her blood pressure and radial pulse were unobtainable. Auscultation of chest revealed the heart tones hardly audible and irregular with many moist rales scattered throughout both lungs. Her pupils became dilated; she became unconscious and had both urinary and fecal involuntaries. To all intents and purposes she looked as if she was going to die. Morphine $\frac{1}{4}$ grain was administered with 2 cc. of adrenalin intramuscularly. Heat was applied, she was covered with blankets and her head was lowered. Another $\frac{1}{6}$ grain of morphine was given for the pain from which the patient was groaning. After working with her for approximately 45 minutes to an hour we felt that the patient was in a condition where she could be taken to the hospital. She was unconscious for five minutes.

Hospital Note.—On entering the hospital her pulse was 100, respiration 24, temperature 101.6. She was slightly cyanotic, breathing with difficulty and complained of dryness in her mouth. Examination of her chest revealed many crackles and moist rales in both bases, more pronounced in the right. Roentgen ray examination failed to reveal any pathology. Her blood picture was 11,000 WBC; 4,300,000 RBC; 1 eosinophile; 7 stabs; 50 segments; 33 lymphocytes and 4 mononuclears. After remaining in the hospital for three days the patient was discharged with a diagnosis of possible pulmonary embolism or infarction. She returned to the clinic for further observation complaining of pain in her back. Over the right side of her chest there seemed to be some rales which were transient and some bronchial breathing. The medical department, feeling that the present findings might be the result of the pulmonary infarct, ordered a roentgen ray of her chest; this was taken on May 13, 1933, with the following diagnosis by our roentgenologist: Pneumonitis, right base, from a possible embolus or infarct. The patient continued to come to our clinic, the findings gradually disappeared and while she complained of her persistent cough for a long time it finally subsided. This patient would never submit to any more injection therapy, for which I did not blame her.

Case 5. I am indebted for the use of this case to Dr. Stuebner, who was in charge of the vein clinic in Washington University School of Medicine. The patient, Mr. M., aged about 50, house attendant, entered Barnes Hospital on January 18, 1931, presenting veins over the medial aspect of the left leg, present for ten years. He had been suffering from severe dermatitis over this area of the left leg for the last eight years. His pulse was normal and his blood pressure 180/70. With the aid of a tourniquet the patient was given 10 cc. of 10 per cent sodium salicylate in the most lower portion of the enlargement. On January 20, 1931, he was injected with 10 cc. of 40 per cent sodium salicylate. He was again injected on January 21, 1931, with 10 cc. of 30 per cent sodium salicylate and again on January 22, 1931, with 10 cc. of 40 per cent sodium salicylate. All the veins were obliterated at this time and the patient left the hospital on January 25, 1931, having had no ill effects from any of the injections. Upon arriving home the patient was seized with pain in the epigastrium. The pain became increasingly severe and he tried home remedies for relief. He developed increasing dyspnea and difficulty in breathing, and remained in bed for several days in an attempt to relieve his discomfort. When seen at home by a physician he had pain in the right chest, many moist rales in the right base posteriorly, and was sent into Barnes Hospital on January 31, 1931.

Hospital Note.—January 31, 1931: At 1 a. m. the patient had another attack of severe epigastric pain.

Morphine sulphate $\frac{1}{4}$ grain was administered with very little relief and was repeated. Examination again revealed rales in the right base and the following diagnosis was made: Pulmonary embolism with infarction, pneumonia and bilateral pleurisy. His chest had been strapped at home for the pain. His breath sounds came through poorly, there were many moist rales over both lower bases and percussion note was impaired to dullness over both lower lobes. His blood picture was: 10,500 WBC; 5,000,000 RBC; 10 stabs; 4 juveniles; 77 segments. On February 2, 1931, the following note was made by Dr. Alexander: Evidence of fluid in both bases. Impression: Double pulmonary infarct.

February 6, 1931: Dr. Barr advised thoracentesis because of the increasing fluid and increasing pain.

February 6, 1931: After five attempts very little fluid was obtained, approximately 2 cc. Roentgen ray taken on February 7, 1931, revealed opacity over the left lung field except for a small area at the apex. There was great haziness over the left half of the opposite lung field, above which was seen mottling, the appearance being that of cardiac decompensation. Roentgen ray diagnosis: Pulmonary edema and fluid in chest cavity. The patient ran a very hectic course for many weeks, but gradually improved, the signs of the chest cleared up, the fluid disappeared and he was discharged on March 7, 1931.

DISCUSSION

Cases 1 and 2 were undoubtedly cases due to severe anaphylactic reaction. Unless definite clinical findings, such as roentgen ray or increased eosinophilia are present, it is very difficult in these cases to make a definite diagnosis between a severe anaphylaxis and a pulmonary accident. The symptoms in both may simulate each other closely.

Cases 3 and 4 we are confident were definitely pulmonary accidents. Case 3, in which the patient returned for further therapy with the same drug without any further untoward results, we feel rules out the possibility of anaphylaxis. In case 4 one might challenge an embolus occurring so shortly after injection. However, Horn and Foged² report a case of fatal pulmonary embolism occurring within thirty minutes after the fifth injection of a patient with glucose. They do stress, however, that the patient might have been a luetic and that liver damage is frequently found in some of these cases. Therefore, a questionable lues in this case, which was ruled out by our laboratory tests, might have been one of the factors, or this accident may have been due to the breaking off of a previously formed thrombus.

Case 5, the case of Dr. Stuebner,⁶ very definitely illustrated what Theis⁷ recently emphasized in an article, that "pulmonary embolism occurs most frequently in bedridden patients and the complete cooperation of the patient after injection in continuing the routine daily activities, will lessen the frequency of pulmonary embolism."

We are aware that any procedure of intravenous therapy is not devoid of danger and it is

not the purpose of this paper in any way to condemn the intravenous therapy of varicose veins. Gratifying it is to have a patient with large veins come for repeated injections, observe the gradual disappearance and obliteration of these veins with the associated relief and satisfaction that is obtained by the patient. However, we believe that this might be the opportune time to impress more forcibly upon men who are using this procedure that it is not just a fool-proof method, that complications can and do occur and that all measures for an immediate emergency should always be easily accessible. We also contend that the patient should be more forcibly impressed with the fact that this is not just the administration of a simple hypodermic but comes under the category of replacing a surgical procedure. We concur with Kilbourne's opinion in an article published in the *Journal of the American Medical Association*, Sept. 13, 1930, which is as follows: "It is necessary that minor as well as major accidents following intravenous injections be reported for the good of humanity and the progress of the profession. Men do not like to report their own bad results, and I would welcome communications in order that they may be reported when a sufficient number appear to throw further light on the problem."

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DISCUSSION

DR. ORVILLE WHITE, St. Louis: I wish to congratulate Dr. Probstein on this splendid paper. I think a great deal of good comes from our frank and honest discussion of our mishaps and failures as well as our successes.

I have been particularly interested in the treatment of varicose veins for the last eight years. It has been my good fortune to be in the surgical clinic, out-patient department, St. Louis University, for the last eight years. We have treated 800 patients in that time and have given 4000 injections. In 2250 injections we used 40 per cent sodium salicylate; in 500 we used 5 per cent sodium morrhuate and in 250 we used 10 per cent sodium morrhuate. Up to the present we have had no mortality. I think those of us who have done the greatest amount of work on varicose veins are begin-

ning to be more and more fearful when we consider the possibilities of injury in this work. The results on the whole have been very gratifying. We have been able to cure varicose veins in a large percentage of cases; we have been able to close a large number of varicose ulcers that I believe would have failed to respond to any other sort of treatment. We have had only one serious reaction in the 4000 injections given at the clinic, and I should like to report this particular case.

Mrs. X, married, aged 45, mother of ten children. Past history essentially negative. Blood pressure 130/80. Physical examination revealed nothing but the varicose veins. She had cramping pains and we felt we were particularly justified in injecting this case because of the great pain. She had very large, numerous, tortuous varicose veins. This patient had previously received eight weekly injections of 5 per cent sodium morrhuate. Her veins were particularly resistant to treatment. On the ninth injection of 2 cc. of sodium morrhuate, February 10, 1936, the patient was apparently well when she left to go down to the street car, but she collapsed on the street. She was brought back to the hospital, but the intern who saw her did not realize she had been in the clinic that morning and a provisional diagnosis was made of diabetic coma. She was unconscious for more than an hour but finally made complete recovery and since that time has had additional injections of sodium morrhuate with no reaction. I am not able to explain the case because I do not know what happened, but I do know she had a serious reaction.

We have had in addition to that one major reaction twenty-three cases of minor reaction, sufficiently serious that they were recorded. These have varied from shortness of breath and pain in the chest up to momentary unconsciousness, but none of these cases was serious enough to detain the patients more than a few moments at the clinic.

I believe from our experience with sodium morrhuate solution that 5 per cent solution is safer to use routinely, much safer than 10 per cent. We have found that our mishaps increased greatly when we increased the strength of our solution from 5 per cent to 10 per cent.

James C. White, Boston (Journal A. M. A., Aug. 1, 1936), centered his remarks on the physiology and surgery of the vasomotor nerves. Sympathetic neurectomy in the treatment of megacolon is consistently effective in suitable cases of Hirschsprung's disease. On the other hand, presacral neurectomy is not a sound method for improving the function of a paralyzed bladder. This has been shown both by disappointing clinical results and by the recent work on the physiology of micturition. A great many unphysiologic procedures have been advocated in the past, but in their justification it must not be forgotten that this entire field of neurosurgery has developed out of Royle and Hunter's suggestion for the treatment of spastic paralysis. This method and many others were based on inadequate fundamental knowledge, advocated with too great enthusiasm and then thrown into the discard. Surgical intervention on the sympathetic nervous system is just emerging from the stage of trial and error. This is due not only to an accumulation of clinical experience but equally to a better understanding of the function of the visceral nerves and a development of diagnostic tests. Of the subjects discussed in this paper, the operative treatment of hypertension alone appears to remain in question. The real value of the others now rests on a firm foundation.

PNEUMOCOCCIC PERITONITIS (PRIMARY)

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SPRINGFIELD, MO.

Two cases of primary pneumococcic peritonitis are offered as a basis for this discussion. Our attention was called to these cases because they entered the hospital at about the same time and because they depart somewhat from the orthodox in that they are both adult females whereas the predominating selectivity of the disease is female children. A detailed clinical and laboratory study was made of each case especially from the standpoint of the mode of entrance of the infecting organism which, together with therapy, presents the most misunderstood phase of the disease. No attempt will be made to give a historical review of the disease except to say that it was first reported by French and German writers over one hundred years ago and written about at that time under the title "Idiopathic Peritonitis." Notwithstanding that numerous cases, mostly in children, have been reported since then, nothing much of importance has been added to our knowledge of the disease except the isolation of the infecting organism and the consequent substitution of pneumococcic peritonitis for the term "idiopathic peritonitis." The most disputed point has been and still is the mode of entrance of the pneumococcus into the peritoneal cavity. In looking over the literature one is left confused by the many conflicting theories and opinions encountered. Generally speaking, there are four possible ways by which the pneumococcus may enter the peritoneal cavity: (1) It may enter through the lymphatic system; (2) through the female genital tract; (3) through the gastro-intestinal tract, and (4) through the blood stream. Each mode of entrance has its advocates and much has been written propounding the various theories but in no instance has the point been proved.

REPORT OF CASES

Case 1. Female, aged 39, housewife.

Family History.—Father and mother living and well for their ages. Has two sisters and one brother living and well.

Habits.—Is inclined to be nervous and has been rather despondent since the loss of a child one year ago. Does not dissipate nor smoke.

Past Health.—Has had three pregnancies, all normal. Was operated on in 1919 when the appendix and part of the right ovary were removed and the round ligaments were shortened.

Present Condition.—Has had a slight cold for the last two months, not severe enough to confine her to the house at any time but persistent being mostly in

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her head with slight cough. On December 21, 1934, patient began menstruating at her regular period. The flow was not normal, only about half of what it should be. On December 23 her cold seemed a little more acute. On the 25th she noticed some soreness in the right and left lower quadrants of the abdomen, low down. This being Christmas day she went to visit her father and mother and during the day the pain grew worse. Believing this to be the result of constipation she took two CC pills at 2 p. m. About 5 p. m., after returning home, she had a slight chill and the pain in the abdomen became more acute and gradually extended higher up in the abdomen. About this time she took an enema. Receiving no relief from this her family physician was called about 8 p. m. He found the abdomen distended, the muscles rigid with general abdominal tenderness, more acute in the lower half. Her temperature and pulse were practically normal. Knowing that the appendix had been removed, she was given $\frac{1}{4}$ grain of morphine. The patient was relieved. During the night, however, the pain began again and she vomited several times and did not sleep much. Bowels moved two or three times during the night. Early the next morning the patient felt somewhat relieved but began having severe pain after going to the toilet where she fainted. I saw her in consultation with Dr. Thomas about noon, at which time she was having pain in the abdomen, more acute in the lower half. Patient looked quite sick and exhausted, tongue dry, temperature 99, pulse 96, respiration 22, blood pressure systolic 100, diastolic 70. Patient was removed to the hospital where the examination was continued with the following findings:

Head and neck negative; eyes rather sunken, expression dull; tongue dry, slight sordes about the lips; throat slightly red; heart rhythm normal, no murmurs; abdomen distended, muscles very hard and rigid, more or less boardlike. General tenderness over the abdomen, more acute in the lower half. The slightest pressure in this region caused severe pain.

Pelvis.—On vaginal examination there is a slight tender bulging in the culdesac.

Neuromuscular.—Reflexes somewhat exaggerated but equal. Patient appears to be highly nervous and under high tension.

Skin.—Negative.

Laboratory Findings.—Urine (catheterized specimen), cloudy, acid, albumin plus, sugar negative. Blood: 1 to high power field; pus, 3 to 5. Casts 1 to 3 hyaline and granular.

Blood.—Hb. 80 per cent; erythrocytes, 4,150,000; index 0.9; leukocytes 48,100; polymorphonuclears 95 per cent; lymphocytes 3 per cent; mononuclears 2 per cent.

Vaginal Smear.—Negative for gonococcus.

Two internists, Drs. Webb and Calloway, were called in for consultation at this time to pass on the patient's chest condition. Possible pneumonia was thought of because of the exceedingly high leukocyte count. They reported, "Examination of chest discloses no pathology in lungs. Abdomen tightly distended, muscular contraction general over whole abdomen. Extreme tenderness to touch, cramp-like pains indicate in our opinion an acute abdomen. We recommend transfer to surgical service."

By this time the patient's temperature had risen to 102.6 rectal, pulse 100, respiration 24. She also became more exhausted and required hypodermic injection of morphine for the relief of pain.

Indications for Operation.—The chest was ruled out as a possible focus of infection and acute gonococcus

infection was ruled out by history and obtaining of a negative vaginal smear. The appendix had been previously removed. The patient was acutely ill with severe exhaustion. The abdomen was distended, hard and board-like. It was, therefore, concluded that an exploratory operation was indicated, having in mind a possible perforation of an abdominal viscus.

Operative Record.—A preliminary of 1000 cc. of 10 per cent glucose was given intravenously.

Operation.—A low midline incision was made. The peritoneum was very thick and the intestines distended. The folds in the pelvis were slightly red and when the hand was passed into the pelvis a large quantity of grayish pus escaped. It had a slight sweetish odor and appeared to be free in the pelvis. There were no adhesions nor exudate on the intestines and no apparent attempt at walling off by the intestines or omentum. The right tube was slightly red but not enlarged nor thickened. No pus expressed nor exuded from the fimbriated end. A laboratory smear was obtained and the operation was suspended for the pathologist's report. He very quickly reported the prevailing organism to be pneumococci. Two large cigarette drains were inserted. The patient was removed to bed; being placed in an extreme Fowler position.

Postoperative Treatment.—The treatment consisted of morphine for pain with rectal installation of normal saline by drop method. Patient was given antipneumococcic serum trivalent, types 1, 2 and 3 after being desensitized.

Progress Record.—December 27: Patient had a fair postoperative night; temperature 100; pulse 100; respiration 26. Afternoon temperature 101; pulse 104; respiration 24. Patient took water by mouth; no vomiting; abdomen distended; very little drainage from the wound; complained of being very tired and exhausted. Four hundred cc. of urine obtained per catheter. There was no serum reaction, and patient was given another 20 cc. of antipneumococcic serum. Late in the evening the temperature went to 104; pulse 130; respiration 32.

December 28: On examining the chest a small area of dullness with increased breath sounds in right lower base was found. Gave 20 cc. antipneumococcic serum. Oxygen tent was in readiness should there be any extension of lung condition.

December 29: One hour following intravenous serum patient had a severe chill the temperature going to 106 and pulse 144. This was followed by sensation of itching over face and upper part of body. There was some cyanosis in the afternoon and patient was placed in oxygen tent the previous afternoon with marked relief. There was some extension of pneumonia area in posterior lung.

December 30: The organism was type IV. The infection extended throughout the whole lung. The consolidation in lower lobe apparently was clearing up somewhat as air could be heard entering the area that had been consolidated. Was kept under oxygen tent most of the time; no cough when under the tent and no expectoration.

December 31: On previous evening there were fine crepitant rales in lower left lung posterior. On December 31, however, this had cleared up. Patient apparently was holding her own with the infection. Leukocyte count went to 14,600.

January 1: Patient better. Temperature and pulse lower than at any time. Patient still very ill and it was necessary to keep her under the tent most of the time. Lower part of lung was still clearing.

January 2: Has had fever up to 101 for last four

days until January 1. Temperature normal January 2. The fever was caused from an infection (staphylococcus) in right kidney. Patient to sit up in chair tomorrow if temperature remains normal.

Postoperative Laboratory Record.—December 28: Leukocytes 31,500; polymorphonuclears 87 per cent; lymphocytes 11 per cent; mononuclears 2 per cent. Culture from wound positive for pneumococci with gram stain; not types 1, 2 or 3.

December 30: Leukocytes 14,600; polymorphonuclears 88 per cent; lymphocytes 10 per cent; mononuclears 2 per cent. Urine cloudy, sp. gr. 1.026, acid, albumin plus, sugar negative; blood negative; 4 to 6 pus cells per high power field. Culture positive for pneumococci with gram stain. Vaginal smear positive for pneumococci. Blood culture showed no growth.

January 3: Leukocytes 25,300. Differential count of 200 cells made: polymorphonuclears 80 per cent; lymphocytes 13.5 per cent; mononuclears 5 per cent; eosinophiles 1.5 per cent. Urine, negative.

January 5: Smears from wound with gram stain show moderate number of organisms (pneumococci): (1) Gram plus lance shaped diplococci (pneumococci); (2) gram diplococci (gonococci?), (3) gram plus bacilli. All organisms are for the most part intracellular.

January 16: Leukocytes 17,100; polymorphonuclears 80 per cent; lymphocytes 16 per cent; mononuclears 2 per cent.

January 18: Blood culture, no growth in 24 hours, 48 hours, 72 hours or 96 hours. Urine cloudy, sp. gr. 1.006, acid; trace of albumin, sugar negative. Blood, many occasional pus cells.

January 19: Urine per catheter, clear, sp. gr. 1.006; faint acid reaction, negative for albumin and sugar; occasional pus cell averaging about 1 to 10 high power fields.

January 21: Roentgen ray examination of chest is negative for evidence of lung pathology.

Case 2.—Woman, aged 22, housewife. Referred by Dr. D. C. McCraw, Bolivar, Missouri.

Family History.—Not important.

Habits.—Regular.

Past History.—Good. Has had some vague attacks of abdominal colic in the past but never an attack like the present one. Has baby six months old. Menstrual periods regular, last period two weeks ago.

Present Condition.—About two or three days previously began having some soreness across the lower part of the abdomen. Thirty-six hours later the pain became acute and more general over the abdomen, accompanied by nausea and vomiting. It appeared to localize chiefly in the right lower quadrant. Has had a slight cold for some time.

Physical Examination.—Looks to be average height with weight and nutrition about normal, looks ill and exhausted. Temperature 103, pulse 124. The tongue and lips are dry.

Chest.—Lungs negative.

Heart.—Slight mitral murmur, rhythm normal.

Abdomen.—Some distention, muscles very rigid and hard. Tenderness extends over the lower part of the abdomen, more pronounced in the right lower quadrant. Patient sensitive to pressure over the entire lower half of the abdomen.

Pelvis.—On vaginal examination the uterus is somewhat enlarged, probably subinvolution. No bulging in the culdesac but there is tenderness.

Neuromuscular.—Patient apprehensive. Skin dry and hot.

Laboratory Findings.—Blood: Hb. 80 per cent; erythrocytes 4,360,000; color index 0.9; leukocytes 25,500, polymorphonuclears 91 per cent; lymphocytes 8 per cent; mononuclears 1 per cent. Urine: Catheterized specimen clear, sp. gr. 1.032, acid, heavy trace of sugar, no blood; 1 plus pus and few casts.

Diagnosis.—Appendicitis, acute, ruptured.

Indications for Operation.—Acute abdominal pain starting in with dull soreness across lower part, later becoming acute and more general and finally localizing across lower part more accentuated in right lower quadrant. Nausea and vomiting. Severe abdominal tenderness with extreme muscle rigidity. Total white count 25,500 with 91 per cent polymorphonuclears. History, laboratory findings, clinical symptoms and physical examination indicate acute appendicitis.

Operative Findings.—Wide right rectus incision under gas anesthesia. On opening peritoneum, which is thickened, there was a profuse thin grayish fluid encountered. The intestines were red and covered with exudate. The cecum was delivered exhibiting an appendix free of adhesions, about 3½ inches long, which appeared normal except slightly reddened surface like that of the intestines. On passing the hand down in the pelvis and lifting up the slightly adherent intestines a large quantity of grayish fluid was released. The appendix was removed and two large cigarette drains inserted. A postoperative diagnosis of probable pneumococci peritonitis was made. Laboratory report on smear was positive for pneumococci.

Progress Record.—Patient was placed in bed in Fowler position and given 1000 cc. of normal saline under the skin.

February 13: Patient had appearance of being very sick; lips parched, skin dry; very toxic.

February 14: Laboratory reports showed the organism type 1, pneumococcus. Temperature stayed around 103 and up. She was given intravenous glucose daily and 20,000 units of antipneumococci serum were given. Stomach lavages produced a large amount of greenish content. Abdomen remained distended. On same day after the serum was given the temperature dropped to 100, pulse 124 and she appeared improved.

February 15.—Temperature began to go up reaching 103.8, pulse 140. Nausea and vomiting, abdominal distention continued but was relieved by pituitrin and enemas. Another 20,000 units of serum were given in 1000 cc. of 10 per cent glucose and normal saline. From this point her condition began gradually to improve and on February 20 her temperature was 99 degrees.

February 24: Patient had higher temperature and complained of abdominal pain low down with some rectal tenderness and on February 27 a localized abscess was discovered in the pelvis which was drained under gas anesthesia. Subsequent recovery was uninterrupted except for phlebitis in the left leg.

Laboratory: Postoperative.—February 13: Smear from abdomen positive for pneumococcus.

February 14: Type 1, pneumonia. Blood culture negative.

February 15: Smear from vagina negative for pneumococci.

February 28: Smear from abscess positive for pneumococci.

SUMMARY

Both of these cases presented similar pre-operative clinical pictures. Neither was correctly diagnosed before operation and the symptoms were in the main similar to those of

appendicitis. They differed somewhat from appendicitis in that both had brief prodromal periods of vague soreness across the lower abdomen two or three days preceding the attack. They gave histories of having a slight cold for some time. Both became desperately sick in a few hours with severe abdominal pain, distention, board-like rigidity, relatively high temperature and fast pulse. The extremely high leukocyte count and high percentage of polymorphonuclears offers a distinguishing point in differentiating it from appendicitis. Both patients appeared extremely exhausted and more toxic than the average case of appendicitis. As a working basis, however, I doubt if it can, especially in adults, be often distinguished from acute appendicitis. In the case of adults, and very probably in children, too, the treatment is surgical in either case. There are some instances in children where a differential diagnosis has been made by abdominal (vaginal) puncture and expectant treatment given. The comparative results between this and primary surgical intervention is about the same except that in the cases treated expectantly, circumscribed abscesses form in a very high per cent of cases, later requiring operation. It is my opinion after study of these two cases that primary surgical treatment is the one of choice even though a differential diagnosis could be made, which I doubt can often be done. The mortality in either method in some series has been reported as high as 40 per cent.

The postoperative treatment, however, may differ widely from that of appendicitis. Therefore it is essential that a positive diagnosis be made, at least at the time of operation and the organism classified according to type. In the light of our present knowledge of antipneumococci serum, I should recommend its use when it falls in the supposedly vulnerable types. In case 1 the patient was desensitized and given serum before the type was determined. She showed a severe reaction the temperature going to 106, pulse 140 and was definitely not benefited. She later was found to have type 4.

In case 2 we were dealing with a type 1 and received a strikingly favorable result, the temperature dropping after each dose to normal with a markedly beneficial result in her general condition.

It was not possible in either case to determine how the organism entered the peritoneal cavity. We do offer proof, however, by negative vaginal smears, that it did not enter via the vagina; we also proved by negative blood cultures that it was not blood born. Both cases had complications and stormy convalescence but recovered.

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PSYCHOGENIC CARDIOVASCULAR DISTURBANCES

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Much has been written and spoken of heart disturbances of neurogenic origin but something can be gained for the practitioner by reconsidering the subject periodically. Certain aspects of these functional disturbances have not been explained sufficiently often in the light of our present knowledge of the heart or of the nervous system. Therefore, assuming that the practitioner has a working knowledge of the organic diseases of the cardiovascular system, this sketchy study will preserve the viewpoint of the neurologist.

THE NEUROCARDIOVASCULAR MECHANISM

The heart beats rhythmically in early embryonic life before it has a nervous control and under certain laboratory conditions adult mammalian hearts can be made to beat for long periods while entirely separated from the body. One may infer consequently that, aside from chemical controls, nature utilizes the nervous control of the heart and blood vessels for certain calls to adaptation; for example, the reflex responses to physical activity and, indeed, to the fear and anger groups of emotions.

Keeping in mind that exercise is largely physical or chemical we readily understand that fear and anger are reactions of the nervous system and we are quite familiar with their obvious cardiovascular manifestations.

Pure fear or horror is a shocking experience to any person and may so "freeze" or block even the reflexes used in flight. This inhibition may be so great that the cardiovascular system cannot function sufficiently to maintain nutrition of the brain and the person faints. However, should the effects of primitive fear be insufficient to cause such a shock—horror—the individual may react by flight or fight.

If flight should be the reaction it is common knowledge that there may be extraordinary signs of cardiovascular strength exhibited. Adrenal activity is sudden and powerful, the blood pressure rises above normal, sugar is mobilized in the blood, and the heart beats rapidly and powerfully. In other words, a fear-release heightens or stimulates cardiovascular activity.

Pure or primitive anger may be called rage, and some of its cardiovascular manifestations partake of the fear-release sort. There are some differences, however. Fear dries up salivary and some other secretions, blanches the

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skin, causes trembling, and may lower blood pressure, while rage causes the opposite sort of reactions unless the anger is strongly admixed with fear, that is, a fear inhibition.

It is these admixtures of fear and anger which often cause the doctor to be delayed in making a diagnosis or baffled in successful treatment of his cardiovascular disorders of emotional or of psychogenic origin. This admixture of emotions constitutes a conflict in the true sense of the word.

ATTITUDE AND CONFLICT

Attitudes are apparently of a hereditary nature but actually family and other environmental factors have more to do with their development than is commonly suspected. Analyze minutely the early childhood and development of a personality and this environmental factor comes into prominence.

Yet, the hereditary pattern of a personality is not to be neglected in a personality evaluation, for one individual may have a greater susceptibility to the fear group of emotions and another to the anger group. Indeed, all of us, normals and abnormals, are continually utilizing some aspect of these primitive emotions to prop our ego, our self-appreciation, up to where we should like it to be.

Our fear-utilizing patients will be likely to be overly conscientious in attitude, or neurotic; our anger guided patients will be determined and aggressive people, or neurotic with their conflicts and frustrations.

These attitudes are really best expressed by the term social conscience, which is, by the way, what we use to justify our social existence and get along well with other people. Frustrate this social conscience and we become annoyed, fearful, worried, or depressed, unhappy, and perhaps physically sick with no organic etiology. Our conflicts have made us neurotic.

CONDITIONING OF REFLEXES

Pavlov's classic experiments for conditioning the dog's salivary and gastric secretions to the sound of a bell demonstrated quite well how useful or not particularly harmful conditioned reflexes may be developed. The increased salivation and free flow of gastric secretion are provided for by perfectly normal reflex mechanisms, yet they may be conditioned to become activated by stimuli quite foreign to their normal pattern.

Considering how there are normal fear reflex reactions, it is no strain on the imagination to assume that they may be conditioned to respond to foreign or abnormal stimuli also.

Assume that some practical joker puts on a fierce mien and tells a man that the next time

they meet the man will be killed on sight. Assuming also that the victim of the joke does not become sufficiently curious or angry at the instance to determine that the threat was only a joke, and decides to ignore it entirely. It may so happen that the man has financial worries, a sick wife or child or reads something of a similar nature in a newspaper and then remembers the joker's threat. This time he is "sensitized" to fear by his worry and he wonders if the joker had been really serious. Then he tries to recall all the real or fancied causes for the joker's supposed homicidal malice. Whether or not he may conclude that the joker is a murderous maniac does not relieve the man's apprehension. How soon will it be until the man looks over his insurance policies, or wonders sheepishly if he should inform his friends and the police about the threat? How long will it be until he may sleep poorly or have disturbing dreams? May he not even have attacks of palpitation of the heart or other sudden heart sensations which may actually fall into the category of fear reflexes? Even the man may recognize the source of his heart disorder, that it is a fear reflex which could be relieved were he to be convinced that the joker was really a joker.

Now, since conscience is nothing more or less than a social fear, an overburdened conscience, remorse or a compensation for an inferiority, is cumulative in its effects upon that person's fear responses. Frustrations, ethical conflicts and worries of any sort can accumulate until some cardiac or other fear reflex attracts the person's attention. Immediately, he has another fear of bodily infirmity to add to his well filled *bête noir* menagerie, and he has become a full-fledged "fear" neurotic with symptoms which recur just as often as his thought trend may be directed toward fears or toward his symptom. He does not need a libidinous frustration to account for his symptoms and his fear can account for his failing libido, Freud notwithstanding.

There is yet an "anger type" of neurotic who if he escapes a psychosis may become a fear or anger-fear neurotic. Likewise, his anger reflexes may be conditioned to respond to stimuli not readily apparent to the lay observer or a disinterested medical attendant. It so happens that suppressed anger is capable of causing pain under certain conditions.¹ These people are likely to be narcissistic, or aggressive but emotionally undeveloped adults ruled by vanities, pride and their ego-centricities. Life has a way of frustrating such individuals in variable fashions. They retreat into themselves or redouble their efforts to secure ego-appeasements, but underneath their thin skins they accumulate an

increased attitude of resentment and hidden conviction of their shortcomings which may be outwardly manifest by their paranoid denunciations of something outside themselves.

Reflex symptoms may be shown among others as mounting hypertension, rapid pulse and pseudo-anginal pain. When these, or other anger symptoms, come to their own attention as abnormalities there is another resentment and frustration for them to cope with and sooner or later fear and increasing introspection hold sway. Such crochety patients are difficult to manage successfully.

It should be mentioned that patients with functional disorders may have many other manifestations than those referable to the cardiovascular system, and for the purposes of treatment such functional symptoms may be regarded as being evidence of disagreeably conditioned primitive reflexes. It should go without saying, also, that the doctor should not make the mistake of assuming the presence of functional disorders without first excluding organic disorders.

REPORT OF CASES

ANXIETY NEUROSIS

Case 1. Miss C., aged 30, divorcee, complained of insomnia, horrible dreams, marked nervousness, irritability, fatigability, constipation, smothering spells, "heart jumps" and palpitation for the duration of one year.

Aside from the worried intensity of her facial expression her general appearance was quite normal. A careful physical examination revealed nothing abnormal except apprehensiveness and a labile pulse rate of 108 down to 88, which varied proportionately to her introspection. Blood, urine and other laboratory examinations were made and were equally unproductive of pathological findings.

The patient had little insight regarding the following sources of trouble: She had been the youngest child of a moderate sized family and had no sisters. Occasional temper tantrums had secured a relative dominance of the family for her. Her education had been stopped after high school graduation except for three or four years' study of one of the arts, and she had actually secured some slight evidences of recognition. About this time she married but failed to live with her husband for the duration of a year. During the early part of the industrial depression she lost her employment and found no further opportunities to exhibit her art. While thus living with an aged parent under straitened conditions, she fell in love with a man who for obvious reasons was in no position to marry. Her outspoken jealousy, possessiveness and temper tantrums also made it plain to the man that he should let his own status remain the same. At last her symptoms became systematized and she was living in terror of sudden death from heart disease.

Her recovery came after much stormy difficulty in management, after two hospitalizations, a prolonged vacation, employment and the eventual substitution of the object of her dominating affection by another. She now has much better insight into the mechanism of her cardiac disorders and jokingly refers to herself as a former "nervous wreck."

Case 2. Mrs. S., aged 26, former dancer, was referred to the writer by Dr. Arthur Heyl, New Rochelle, N. Y., because it was necessary for her to be in St. Louis for several months. His careful examination had shown no organic disease unless a diphaseic T wave in lead III of the electrocardiogram and a basal metabolic rate of -12 per cent could be indications. Her menstrual periods were of two days' duration but otherwise normal.

Patient's complaints were fear of dying from heart stoppage, heart consciousness, pulse consciousness, "lurching" and palpitation of the heart, giddiness, inability to concentrate, a feeling as if walking on air, "shimmering" and haziness of vision, insomnia, bad dreams, a curious half sick sensation in the epigastrium, crying spells and nervousness.

As usual with such patients, she was very unwilling to admit any insight beyond recognizing that excitement, alcohol or arguments with her hard working husband precipitated attacks because they also come on "for no reason at all." However, she was intelligent and after she was encouraged to unburden her past difficulties she was willing to cooperate insofar as weakened courage would allow. Suffice it to say that within three months her slight heterophoria was corrected by ocular exercises, her confidence had been restored so that she could walk, swim, ride horse back and take as many social libations as was in good taste. During the following fall and winter she was able to continue with full social activities and gratefully entered into amateur dramatics and winter athletics.

All this was accomplished by following out the findings of a careful personality study, the explanation of the mechanism for her disagreeable conditioned reflexes and the gradual and progressive restoration of her ego which was carrying a heavy load of inferiorities.

It is worthy of mention here that such depressed and frustrated patients often have a slightly lowered basal metabolic rate which appears to be a result rather than a cause for symptoms. The T wave disturbance in the electrocardiogram may be brought about by neurogenic imbalance or by the relative alkalosis which these patients not infrequently have due to their hyperventilation.

CARDIAC NEUROSIS

Case 3. Mr. P., aged 40, appeared to get through the World War without noteworthy damage to his nervous system even though a shrapnel scar was on his back. He resumed civil life and worked hard as a salesman and at the beginning of the depression was a district sales manager. He was married and had an increasing family but he was forced to take a demotion and cuts in salary and commissions. At this time he was outwardly a pretty fair representative of the high-pressure sales gentry. Inwardly he was feeling that his company's sales methods were something bordering upon a "racket." He was suppressing a faint conscience and he resented the entire situation, feeling sympathy for both himself and his customers.

Rather promptly Mr. P. developed a duodenal ulcer. This yielded to dietary management. At frequent intervals he returned for advice about nervous dyspepsia, and sheepishly admitted that he was nervous and afraid.

His heart was lurching about at times and seemed about to stop at any instant. Sudden changes of position would sometimes make him dizzy. He was quite well convinced that he might die suddenly and leave his wife and children unprotected in the world. After being reassured about the condition of his heart he demanded a routine which should keep him well. Part of that routine consisted of what was expected to be an

inexpensive and harmless diversion, walking in the park.

About a week later an urgent call came in. Mr. P. was at home and quite sick with his heart. The call was made but at the caller's convenience. Mr. P. was better but annoyed by the "neglect." It developed that he had been making a serious ceremony by his "life-saving" exercise in the park, and he was taking it just as he might take a dose of medicine. That morning he had been a bit late but he had stopped his car and started walking only to have another "attack of dying."

It was explained to him that his heart would be abnormal, indeed, if it could not respond to fear in the manner it had, considering how he was always taking infinite pains and exquisite precautions to keep himself reminded of a deplorable condition of his heart which was in fact nonexistent. This sort of lecturing was prolonged until he was thoroughly angry, and the "attack" was over. . . . Then it was explained how determination and anger are antagonistic to fear and, in his case, whence his cure must come.

SUGGESTION NEUROSIS

Case 4. A well developed boy of 15 was brought in from the country for examination and treatment. His worried mother told a rather lengthy story how her lot as a widow with three growing children had been a hard one, and how determined she had been to secure education for them. This particular boy had been destined for West Point until it had been discovered that candidates must pass a very thorough physical examination. Her local physician examined the boy to see whether or not she was wasting her efforts.

The boy had a heart murmur, tachycardia, high blood pressure and bad tonsils. The tonsils were removed and the boy got along well enough so far as the operation was concerned. The mother continued to restrict the boy's physical activities, made frequent pulse rate estimations and palpated his precardium. When he became irritable and moody she felt that something more must be done.

In spite of extremely warm weather the boy's hands and feet were almost cold. His pupils were dilated. The blood pressure was 160/80, and the pulse 108. There was a soft systolic murmur at the apex of the heart which was inaudible the moment he sat up. Exercise promptly caused his heart to slow by a normal response. When the pulse rate was normal in the supine position the murmur was absent also.

The boy and his mother were told that regardless of whether or not he might be accepted for West Point, his heart was entirely competent and he should have the physical freedom for work or play enjoyed by any boy of his age and nothing was to be gained by frightening him into semi-invalidism. Subsequent developments indicated the wisdom of their change of attitude.

DISCUSSION

Probably a hundred cases of these functional cardiovascular responses to primitive emotional reflexes could be described but they would add little except detail to the skeleton of principle involved in the recognition of the nature of the disturbances and the method of their treatment.

The physician must first exclude the possibility of organic disease. Sometimes this is not easy and frequently the doctor may have to assume additional responsibility in making a diagnosis of functional disease. For example, it

might be disastrous to make a mistake between angina and pseudo-angina, or a mistake concerning coronary occlusion which is within the realm of possibility should the lesion happen to be painless. It would be bad for the patient and the doctor's reputation were he to mistake the symptoms of a functional tachycardia and that of hyperthyroidism, and proceed to remove the "goiter." Bed rest is indicated for paroxysmal tachycardia or auricular flutter, but not necessarily so for the neurotic palpitator. Little good could be accomplished by treating the bradycardia of a hysteric as a case of heart block, and it might be disastrous to treat a case of heart block as if it were functional in origin.

Generally speaking, it is better to treat all heart patients as if they were organically ill than to do the opposite; but, of course, that is not all there is to cardiology or to neuro-psychiatry. The problem is to treat such patient correctly.

University Club Building.

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TULAREMIC PNEUMONIA

From the reports in the literature, particularly in the light of recent pathologic studies, LeRoy H. Sloan, A. S. Freedberg and J. C. Ehrlich, Chicago (*Journal A. M. A.*, July 11, 1936), are led to believe that tularemic pneumonia is not a rare disease, although it is often unrecognized. While only one instance of recovery of the organism from the sputum has been recorded, and an absolute clinical diagnosis is difficult in its absence, the frequent association of caseous pneumonia with tularemia makes it reasonable to assume that an atypical pneumonia developing in a patient with a clinical history of tularemia, particularly if associated with pleural effusion, combined with a protracted course, and the failure to establish tuberculosis or other specific granulomas as the etiology, is sufficient evidence to establish the clinical diagnosis of tularemic pneumonia. It is noteworthy that, in all the reported cases the physical and X-ray signs of pulmonary consolidation do not appear until quite late in the course of the disease and do not disappear until long after apparent clinical recovery, if at all. The process evidently begins with involvement of the hilus, which then spreads peripherally, making early diagnosis difficult. The prognosis is generally considered to be very unfavorable, but reports of tularemic pneumonia with recovery, together with the fact that many cases are probably unrecognized, throw some doubt on this conclusion. The portal of entry may be other than the skin in some instances, as in the respiratory or gastro-intestinal tracts. In the authors' case, for example, the onset of productive cough shortly following the constitutional symptoms, together with the absence of a cutaneous lesion, may be interpreted as being due to a primary tularemic pneumonia. The absence of physical changes may be explained by the presence of localized hilar involvement. Their case of tularemic pneumonia with recovery was complicated by a spontaneous hydropneumothorax. Supportive and palliative measures resulted in recovery.

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POSSIBLE HEALTH HAZARDS IN APPARENTLY MODERN PLUMBING INSTALLATIONS IN PUBLIC BUILDINGS

There are several possible health hazards in plumbing fixtures and plumbing installations today such as type of fixtures, location of supply and waste fixtures, which all terminate in the form of back siphonage.

Back siphonage may take place when an artificial vacuum is created in a water supply riser as the result of a drop in water due to peak loads overtaking the system, or to closing off the water supply while making repairs or alterations. Two inches of vacuum will pull water in a column approximately 2.3 feet.

A back siphonage preventive is essential on any fixture the supply inlet of which is at any time submerged below the water level of the fixture, as in water closet bowls with side inlets, one piece water closets that depend upon aid from the city water supply to operate bowl properly, and water closets with flush valves instead of reserve tanks. Also, tubs with bell supplies or any type of fixture where the end of the spout is below the rim and there is a possibility of waste water reaching the spout; lavatories with integral spouts and bell supplies and drinking fountains with the inlet below the rim of the receptacle. These types of fixtures are in common use in schools, hospitals and other public places.

Every fixture where there is a possibility of back siphonage should be equipped with a vacuum breaker to eliminate any such occurrence. These breakers are so constructed as to eliminate air in the line and to break the vacuum. In this manner there is no possible chance of polluted water being drawn into the fresh water line.

In public schools where various types of fixtures are used that are most usually under repair, due to breakage and leakage, a vacuum breaker should be used. Also all faucets should

be at least one inch above the rim of fixtures so there will be no chance for back siphonage as air will be eliminated between the rim and the end of the water spout. An ordinance has been passed in various eastern cities complying with the foregoing statement so that in case lavatory or tub becomes clogged the waste water will be within an inch of the water spout.

In hospitals where fixtures with supply inlets are at any time submerged below the water level of the fixture a back siphonage preventive is most essential; for example, continuous flow tubs, roentgen ray developing tanks, leg and arm baths, and bedpan cleansing fixtures or closets when in operation.

Fresh water is most essential in hospitals as treatment with water for symptomatic, curative and preventive purposes is being used more and more in this country. More ways are being found to derive benefits from water treatment and to understand its use. A hospital is not modern in every respect which does not have complete equipment for water treatment. Hydrotherapeutic measures are again being recognized by medical science as a most effective agency to be employed in hospital service for selected cases. This type of equipment is primarily used in psychopathic institutions and sanitariums for the treatment of mental cases. However, a number of the items are being used extensively in general hospitals, as the leg and arm bath and the sitz bath; the continuous flow bath is also coming into general demand for hospitals in the treatment of arthritis and skin and nerve diseases. In all these types of fixtures vacuum breakers should be used on each individual fixture to assure pure water in the supply at all times.

On another page * will be found resolutions adopted by the joint committee on health problems in education of the National Education Association and the American Medical Association on the potential importance of this problem.

OLFACTOMETRY

It has often been commented upon that animal species lower in the phylogenetic scale than man have a more keenly developed sense of smell than man has. Bees, guided only by olfactory sensations, have been known to fly several miles to mates released for the special purpose of testing the smell power of these insects. In the mating period, in the search for food, in the escape from larger animals, in all of these vital activities, the sense of smell plays an important part in producing and maintain-

* Page 365.

ing the lives of the lower species. With the development of a thinking mechanism the olfactory sense in man became less acute. In the search for food and in the escape from hostile forces the sense of smell in man plays no direct part; on the other hand, psychiatrists have pointed out that in the human race the sense of smell sometimes plays an important part in determining sexual relations.

In the lower animal species a large part of the brain is given over to the perception and identification of odors; indeed, in the amphibia a large portion of the substance corresponding to the cerebrum in man is occupied by the pallium, charged with the duty of smell interpretation. It is not surprising, therefore, that in the human embryo there is a stage at which a large portion of the brain corresponds ontogenetically with that of the fish. As the buckling and overriding processes which give rise to the adult human brain continue this smell perceiving apparatus occupies a considerable area of what will eventually be the frontal lobes. In addition, there are large numbers of unilateral and bilateral nerve fiber tracts; inasmuch as these fibers pass through much of the brain substance it is not surprising that they should be pressed upon by new growths arising within the cerebral tissues. Since they also pursue an extracerebral course they are subject to pressure from tumors arising in the extrameningeal area. Until 1935 there was no satisfactory method of taking diagnostic advantage of the relatively large area occupied by the olfactory mechanism both within and without the brain.

Because earlier methods were uniformly unsatisfactory, C. A. Elsberg¹ of the Neurological Institute of New York has recently made a particular study of the diagnostic information to be derived from careful olfactory testing. He devised a simple apparatus consisting of a bottle containing the substance to be tested, a syringe by which a constant pressure could be exerted upon the contents of the bottle, and a nasal tip. After proving the integrity of the nasal passages, he subjects the patient to repeated blasts of odor saturated air, measuring the minimum number of cubic centimeters of odoriferous air which can be identified. Comparison of the value thus determined with that on the opposite side may reveal a decided difference in odor sensibility. The worth of the test is further enhanced by the finding that normal individuals have a relatively constant olfactory coefficient, that is the amount of odor saturated air which can just be perceived does not vary appreciably from one individual to another. However, the olfactory sense is impaired for

considerable periods of time in persons just recovered from an acute coryza and this impairment persists for several weeks after all evidence of inflammatory change in the nose has disappeared.

The second part of the test consists in the determination of the duration of fatigue after a stream of odor laden air has been rapidly passed through the nose for various periods of time. In the normal individual there is relatively quick return of the ability to identify odors as compared with the delay found after exhaustion of the olfactory sense by frontal lobe tumors.

Of a variety of olfactory stimulants tested, coffee with its characteristic aroma and citral with its lemonish "taste" were finally selected for routine use. An interesting by-product of this investigation lies in the revelation of the function of the trigeminal nerve in interpreting olfactory sensations. The tickling, burning, smarting, sometimes pain, which accompanies the perception of odors arises from stimulation of this nerve, not from stimulation of the olfactory centers themselves. In some patients who have lost the sense of smell there is nevertheless a residual ability to recognize certain odors because of the memory association between earlier pungency (mediated by the trigeminal nerve) and the simultaneous smell perception. These related experiments also demonstrated the bilaterality of the function of smell, a summation of sensory stimuli applied to the two sides of the nose simultaneously enabling the preception of lesser amounts of the smell substance than would be perceived on either side individually.

With the standardized technic which Elsberg and his associates have perfected they have been enabled to examine fifty-two patients in whom a brain tumor was verified by autopsy, operation or air injection. The accuracy with which these tumors were localized is uncanny and no doubt reflects in large part the skill of the investigator and the fidelity with which he observed the minutiae of the test. In subfrontal, extracerebral growths the minimum identifiable odor (olfactory coefficient) is elevated on one or both sides, the side of greater elevation denoting the side of the tumor; but there is no change in the duration of olfactory fatigue. In supratentorial tumors within the substance of one cerebral hemisphere the minimum identifiable odor may be normal or smaller than normal but the duration of homolateral fatigue is definitely prolonged. On the other hand, if the tumor lies within the substance of one frontal lobe the minimum identifiable odor is elevated and the duration of olfactory fatigue is prolonged on the homolateral side. It must not be overlooked that there may be disturbances of the

1. Elsberg, C. A.: The Localization of Supratentorial tumors of the Brain by Olfactory Tests, *Ann. Int. Med.* 10:49, 1936.

olfactory sensation in patients without brain tumors; contrariwise, there may be brain tumors without disturbance of the olfactory sensation.

The method described by Elsberg is certain to have widespread clinical application in the localization, but not in the diagnosis, of brain tumors; it will simplify the task of the brain surgeon. It is particularly gratifying because it is a method without the risk attendant upon air injection as a localizing method. Further contributions may be expected to localize tumors in other areas of the brain.

ENDOMETRIUM AND CORPUS LUTEUM

The endocrinologist usually explains the activities of the female generative tract in orderly sequence; he correlates the appearance of secretions of the anterior lobe of the hypophysis with changes in the ovary and uterine lining. Most of the hormones which he describes are available commercially and their catalytic action can be reasonably assumed to bring about clinical correction of deficiency states. Several years ago Loeb¹ reported that there was a reciprocal functional relationship between the endometrium and ovary of the guinea pig. Briefly, his results may be summarized in the statement that if the entire uterus was removed the corpus luteum persisted during the entire period of observation; if any portion of the uterine mucosa was left, the corpus luteum disappeared after variable periods of time, to be followed by ovulation and irregular repetition of the sexual cycle. Loeb, as well as other investigators, have been uniformly unsuccessful in demonstrating a hormone although the evidence seems fairly conclusive that the endometrium exerts its influence on the ovary through hormonal rather than other action.

Clinical investigation is available which tends to show that the same mechanism is operative in the human being. Tamis² and Marx, Catchpole and McKennon³ have correlated the presence of endometrial residues with the appearance of the bizarre symptoms of the menopause after partial or total hysterectomy. They find, as have other investigators, that in the menopause there is disappearance of estrin (female sex hormone from the ovarian follicle causing endometrial hyperplasia) from the urine with

increase in the amount of Prolan A (the follicle stimulating hormone of the anterior lobe). There is a rough correlation between the frequency and intensity of "hot flashes" and the disappearance of estrin from the urine. It has been found that if a fundal hysterectomy is done, i. e., if most of the uterine mucosa is preserved, menstruation continues and there are none of the distressing symptoms so frequently associated with more complete removal of the uterus. Hence, it is to be expected that supra-vaginal hysterectomy, preserving as it does a small segment of endometrium, would be associated with persistence of some estrin secretion and lesser intensity of the symptoms of an artificial menopause than if a complete hysterectomy is performed. This is exactly the finding of the investigators named. On the other hand, some patients presenting none of the disturbing symptoms of the menopause show little or no estrin secretion, with or without increase in prolant output. Hence one is led to the conclusion that there is some as yet unknown compensatory mechanism which serves to regulate the symptomatology of the pituitary-ovarian system even in the absence of an endometrial hormone.

Another point emphasized by these studies is that hysterectomy does not necessarily so diminish the blood supply of the ovary that atrophy is inevitable. The function of this organ as determined by urinary estrin determinations may continue intact. Even with removal of one ovary and part of the other there may be persistent estrin production; hence it becomes obvious that the supply of this important hormone is dependent more on the quality than on the quantity of the ovarian residue. Furthermore, estrin production will continue for several years after a technically proper hysterectomy instead of for only a year or two as often assumed.

There is sufficient conflict between the results of hormone assay and the clinical symptomatology of the patient to show that a considerable hiatus remains in our knowledge of the complex endocrinology of the artificial menopause. The nature of the endometrial secretion, if any, and its mode of action forms a large blank and leaves open a wide field for further investigation. The relief often afforded these patients from mild sedation or even from sterile hypodermic injections further illustrates this lack of knowledge. The observation of women with little or no estrin and increased prolant secretion adds to the difficulty. Yet, the preponderance of clinical evidence, even though it is not yet extensive, leaves little doubt that the patient on whom a hysterectomy must be performed is considerably benefited if a portion of the uterine lining is left intact, that thereby a state of per-

1. Loeb, L.: The Effects of Hysterectomy and on the System of Sex Organs on the Periodicity of the Sexual Cycle in the Guinea Pig, *Am. J. Physiol.* **53**:202, 1927-8.

2. Tamis, A. B.: Menopausal Symptoms and Ovarian Function Following Hysterectomy, *Am. J. Obst. & Gynec.* **28**:48, 1924.

3. Marx, R.; Catchpole, H. R., and McKennon, B. J.: Ovarian Function and Occurrence of Menopausal Symptoms Following Hysterectomy, *Surg. Gynec. & Obst.* **63**:170, 1936.

sistent corpus luteum formation is more likely avoided with all the disturbing symptomatology that may ensue.

KANSAS CITY AND CLINICAL MEDICINE

It is significant that progressive medicine in Kansas City has been keeping pace with the active growth and influence of the city itself.

As one reviews the history of the expansion and commercial development of Missouri's western metropolis from its earliest days, when the "city situated at the junction of the Missouri River and the Kaw" gave great promise of becoming at some future date a community of note, one may trace at the same time, as a characteristic tendency of its cultural progress, a continuous determination to promote and stimulate medical science and advancement.

Kansas City has many times demonstrated her advantages as a medical center of the Middle West. Only recently did she take her place among the older organized medical communities when the Kansas City members of the medical profession, with one common purpose in view, took upon themselves the not inconsiderable task of materially aiding the American Medical Association in conducting one of the most successful conventions in the history of that great organization. For this success, be it said with all fairness, the profession claims but a part of the credit; loyal lay citizens and city officials stimulated by that urge for progress which has become universally known as the "Spirit of Kansas City, the Heart of America," are to be accorded a great share of the well earned honor and recognition for this achievement.

Elsewhere in this issue of the JOURNAL will be found the announcement of Kansas City's Annual Fall Clinical Conference, to be held October 5 to 8. The purposes of these annual medical assemblies have become well recognized all over the country; these purposes are primarily to furnish the physicians of the Southwest with the means of securing a veritable postgraduate course of instruction in the more important fields of medicine; to review the advancements made in the various specialties and to present an agreeable medium through which better fellowship can be maintained among the physicians of this region, many of whom have become habitual "pilgrims" to these fascinating medical meetings.

This year, the Kansas City Southwest Clinical Society will present its fourteenth annual conference. Kansas City and its clinical society are to be congratulated on the success which former annual meetings have attained; we predict that the 1936 Conference will earn the com-

mendations which previous assemblies have received.

SOUTHERN MEDICAL ASSOCIATION

The Southern Medical Association will hold its thirtieth annual meeting in Baltimore, Maryland, November 17 to 20. All general sessions, all sections and some of the sessions of organizations meeting conjointly and all exhibits will be in the Fifth Regiment Armory.

The first day will be "Baltimore Day" and all presentations will be made by Baltimore physicians. Two general clinical sessions will be held Wednesday morning, one surgical and one medical. Several of the smaller sections will meet Wednesday morning but most of the sections will start their meetings Wednesday afternoon. On Friday afternoon there will be clinics, clinical sessions and ward walks at the various Baltimore hospitals.

A public meeting will be held Tuesday evening and the program will feature current health topics. A general session will be held Wednesday evening at which the president's address will be delivered and officers will be elected. This will be followed by the president's reception. Thursday evening will be given over to alumni reunion dinners.

An after Baltimore Cruise down the Chesapeake Bay is being planned. Visits will be made to Yorktown, Jamestown and Williamsburg. The cruise will leave Baltimore late Friday afternoon and return Sunday morning.

AMERICAN BOARD OF INTERNAL MEDICINE

The American Board of Internal Medicine, incorporated on February 28, 1936, completed its organization on June 15, 1936. The board was organized by the American College of Physicians in conjunction with the Section on Practice of Medicine of the American Medical Association and those two organizations are represented in the membership of the board. The board is officially approved by the two bodies fostering its organization and the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association.

The purpose of the board is the certification of specialists in the field of internal medicine and the establishment of qualifications with the required examination procedure for such certification. The board is concerned at present with the qualification and procedure for certification in the general field of internal medicine but it is intended to inaugurate similar qualification and procedure for additional certification

in certain of the more restricted and specialized branches of internal medicine, such as gastroenterology, cardiology, metabolic diseases, tuberculosis, allergic diseases and others, after July, 1937. Such special certification will be considered only for candidates who have passed the written examination required for certification in general internal medicine.

The first written examination will be held in December, 1936, and candidates successful in this written test will be eligible for the first practical or clinical examination which will be conducted by members of the board near the time of the annual session of the American College of Physicians in St. Louis in April, 1937. The second practical examination will be held at Philadelphia near the time of the Annual Session of the American Medical Association in Atlantic City in June, 1937. The fee for examination is \$40 which must accompany the application and an additional fee of \$10 is required when the certificate is issued. Application blanks and further information may be obtained by addressing the office of the chairman, Dr. Walter L. Bierring, 406 Sixth Avenue, Des Moines, Iowa. Dr. Jonathan C. Meakins, Montreal, is vice chairman; Dr. O. H. Perry Pepper, Philadelphia, is secretary-treasurer; the membership of the board is Drs. David P. Barr, St. Louis; Reginald Fitz, Boston; Ernest E. Irons, Chicago; William S. Middleton, Madison; John H. Musser, New Orleans, and G. Gill Richards, Salt Lake City. The term of office of each member will be three years and no member can serve more than two consecutive three year terms.

MEDICAL MILITARY INACTIVE TRAINING COURSE AT MAYO FOUNDATION

The eighth annual training course for Medical Department Reservists of the Army and Navy will be held at the Mayo Foundation, Rochester, Minnesota, October 4 to 17. This training course was first inaugurated by the Seventh Corps Area at the request of the Mayo Foundation to give training in military medicine to the younger medical men connected with the Foundation. Other reserve officers requested permission to enroll and to take advantage of the opportunity to attend clinical presentations during the morning hours. Such permission was granted and the course has become so increasingly popular that it is now necessary to limit the enrollment.

The program will follow the plan of past years. The morning hours will be devoted entirely to professional work in special clinics and

study groups. Officers in attendance may select the course they wish to follow from the wide variety of presentations offered. The afternoons and evenings will be devoted to a medico-military program under the direction of the Surgeon of the Seventh Corps Area (Army) and the Surgeon of the Ninth Naval District (Navy). This training is on an inactive duty status and is without expense to the Government. Enrollment is open to all Army and Navy reservists of the Medical Department in good standing. Applications should be submitted to the Surgeon of the Seventh Corps Area, Omaha, Nebraska, or the Surgeon, Ninth Naval District, Great Lakes, Illinois. Enrollment is limited to two hundred.

NEWS NOTES

The next written examination and review of case histories of Group B applicants by the American Board of Obstetrics and Gynecology will be held in various cities in the United States and Canada on Saturday, November 7. Application blanks and booklets of information may be obtained from Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh, Pennsylvania. Applications for this examination must be filed in the secretary's office sixty days prior to the scheduled date of examination.

The Mississippi Valley Medical Society will convene in Burlington, Iowa, September 30 to October 2. Missouri members who will appear on the scientific program are Drs. Karl D. Dietrich, Columbia; Spencer L. Freeman, Kirksville; F. V. Emmert, Louis H. Jorstad, Roland M. Klemme, Quitman U. Newell, Howard Rusk and F. H. Ewerhardt, St. Louis. At an informal banquet and entertainment in the evening of October 1, Dr. Ross A. Woolsey, St. Louis, and the Rev. Father Alphonse M. Schwittalla, St. Louis, will present addresses. Dr. Howard B. Goodrich, Hannibal, is president, and Dr. Harold Swanberg, Quincy, is secretary.

The twenty-first International Assembly of the Inter-State Postgraduate Medical Association of North America, under the presidency of Dr. David Riesman, Philadelphia, will be held in the Public Auditorium in St. Paul, October 12 to 16, with preassembly clinics on October 10 and postassembly clinics on October 17 in the hospitals of St. Paul. The aim of the program committee with Dr. George Crile, Cleveland, as chairman, is to provide for the medical profession of North America an intensive postgraduate course covering the various branches

of medical science. The program has been carefully arranged to meet the demands of the general practitioner as well as the specialist. In cooperation with the Minnesota State Medical Association, the Ramsey County Medical Society will be host to the Assembly. A registration fee of \$5 will be charged and all members are invited to attend. Drs. Joseph W. Larimore and Lawrence T. Post, St. Louis, will appear on the program.

The International Association of Industrial Accident Boards and Commissions will hold its twenty-third annual convention in Topeka, Kansas, September 21 to 24. The membership of the association is composed of administrators of compensation laws throughout the United States, the territories and the provinces of Canada. It has been the custom to devote a day of the session to phases of medical problems as applied to workmen's compensation. On September 22 such subjects as "Injection Method Treatment of Hernia," "Effect of Trauma in Lighting Up Tuberculosis," "Measurement of Schedule Injuries Under the Various Acts," and "Rating of Eye Disabilities" will be discussed. In addition to the Tuesday medical program the association will for the first time have a separate and distinct medical section for the physicians. This will be on Wednesday and will deal with a number of technical medical subjects with relation to workmen's compensation. Dr. J. F. Hassig, Kansas City, Kansas, is chairman of the medical committee. Mr. C. Clay Baker, Topeka, president of the association, has issued an invitation to members of the medical profession interested in the treatment of industrial accident cases and workmen's compensation to attend the session.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Campbell Products, Inc.

Kephrene

Kephrene Hydrochloride

Kephrene Hydrochloride Bandages

Kephrene Hydrochloride Gauze

Kephrene Hydrochloride Powder

Kephrene Hydrochloride Rectal Suppositories

Lederle Laboratories

Allergenic Extracts—Lederle

Ash Pollen Antigen—Lederle

Beech Pollen Antigen—Lederle

Hickory Pollen Antigen—Lederle

Poplar Pollen Antigen—Lederle

Sycamore Pollen Antigen—Lederle

Sharp & Dohme, Inc.

Diphtheria Toxin for Schick Test Diluted Ready for Use—Mulford

Diphtheria Toxin for Schick Test Control Diluted Ready for Use—Mulford

Insulin—Mulford, 100 units, 10 cc.

Tetanus Gas-Gangrene Antitoxin Mixed—Mulford

E. R. Squibb & Sons

Gas Gangrene Antitoxin—Squibb

Tetanus-Gas Gangrene Antitoxin—Squibb

The following articles have been accepted for inclusion in the list of articles and brands accepted by the Council but not described in New and Nonofficial Remedies, 1935, p. 445:

Lederle Laboratories, Inc.

Glycerinated Allergenic Extract—Lederle

Truesdail Laboratories, Inc.

Golden State Agar Agar

MISCELLANY

HEALTH HAZARDS IN MODERN PLUMBING IN PUBLIC BUILDINGS

At a meeting of the joint committee on health problems in education of the National Education Association and the American Medical Association held in St. Louis in February, 1936, the following resolutions were adopted on motion of Dr. W. W. Bauer, seconded by Dr. R. G. Leland:

WHEREAS, At the annual meeting of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association held at St. Louis, Mo., February 25, 1936, a presentation was made by Major Joel I. Connolly, of the Chicago Board of Health, relating to possible health hazards in apparently modern plumbing installations in public buildings, and

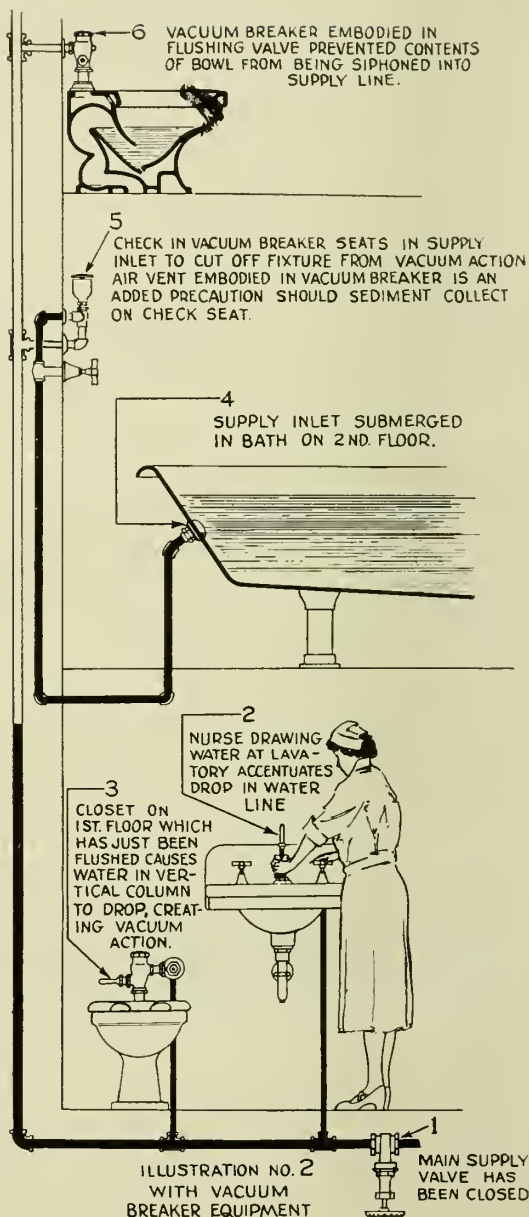
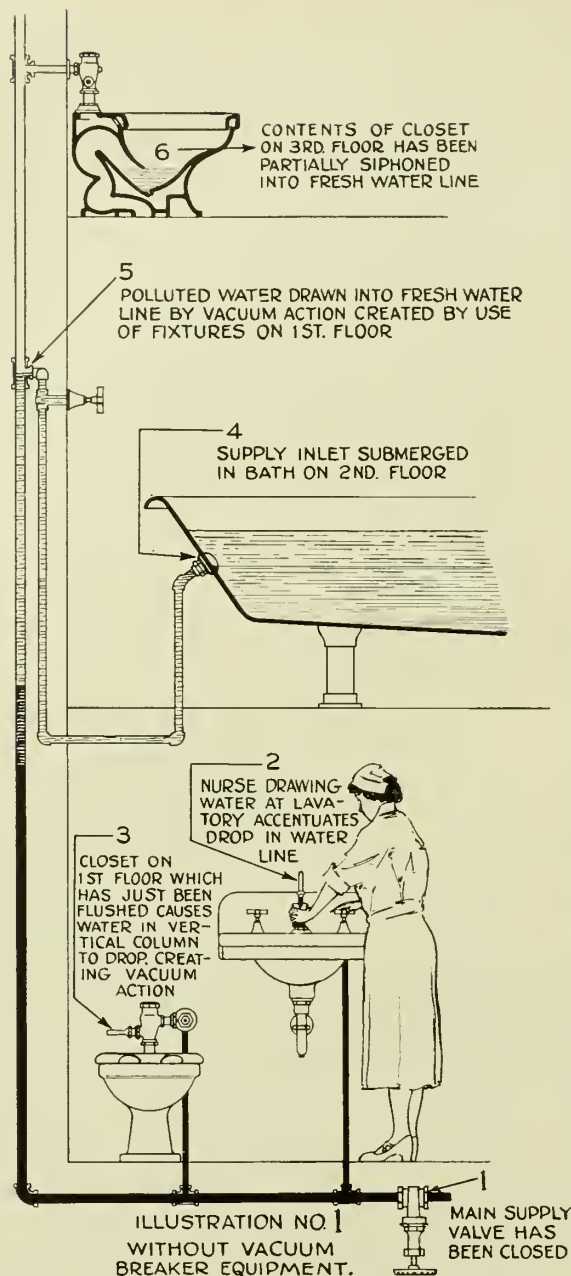
WHEREAS, It was manifest in the said presentation that plumbing fixtures which have been generally regarded as safe and sanitary in design may in fact constitute a real and serious health hazard by reason of the danger of back siphonage and contamination of water supply mains, and

WHEREAS, The probability exists that such apparently modern, safe and sanitary plumbing installations may exist in numerous school buildings in the United States, and

WHEREAS, The existence of such apparently safe, modern and sanitary plumbing installations and reliance upon them brings about a sense of false security, therefore, be it

Resolved, By the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association that this Committee apprehends the possibility of danger to the health of school children from apparently safe, modern and sanitary plumbing installations in school buildings, and be it further

Resolved, That the said Joint Committee earnestly recommends to all school boards and school executives that surveys be instituted by competent engineers to ascertain whether or not the danger of back siphonage



Manner in which back siphonage occurs

and consequent pollution of water supply mains exist in plumbing installations within their jurisdictions, and that such surveys be followed by prompt corrective measures, and be it further

Resolved, That these resolutions be offered for publication to all journals dealing with public health, health education and general education.

VITAL STATISTICS IN SICKNESS INSURANCE¹

Vital statistics, however imperfect, are one of the chief means now available for measuring health, longevity, and the progress of medical service in the battle against disease. Medical service is, to be sure, not the

only element affecting morbidity and mortality statistics. Economic and social environment both past and present may have effects which cannot be accurately isolated by any present-day statistical technic. When all these modifying elements are taken into consideration, however, we are still faced with the fact that the rate of decline in disease, the length of life, and morbidity and mortality in general have declined in a ratio that more closely follows the progress of medical service than any of the other elements.

The health organization of the League of Nations compiles vital statistics for most of the world.¹ The

1. Annual Epidemiological Report, Corrected Statistics of Notifiable Diseases for the Year 1934. Published by the Health Section, Geneva, 1936. Figures in the text are taken from this unless otherwise stated.

most improved statistical technic is used to make these figures comparable. If it is possible to provide better medical service to the mass of the people by means of compulsory sickness insurance than through the private independent practice of medicine, that fact should in some way be reflected in these statistics.

The latest compilation of the Health Section of the League of Nations of the general death rate for all the reporting countries covers the period from 1911 to 1934. The statistics are standardized so as to allow for differences in ages in the different countries, but not of course for general social conditions. The countries that in 1934 had a death rate of less than 10 per thousand are the Union of South Africa, Australia, Canada, New Zealand, Norway and the Netherlands. Only Norway among these has a system of compulsory health insurance that has lasted for a considerable time; that of the Netherlands was introduced about five years ago.

The United States death rate is calculated at 11 per thousand. This includes the Southern states, with a colored population not found in any European country. If this section were excluded and only the states having a population and a geographic location comparable to that of the European nations with compulsory insurance systems were considered, this country would show a lower death rate than that of any of the insured countries.

Only one South American country, Chile, has a system of compulsory sickness insurance. This country had a death rate of 26.8 in 1934 as compared with 11.8 in Argentina and of 10 in Uruguay, in neither of which countries is there an insurance system.

A better test of the efficiency of medical service is found by a study of the death rates from certain diseases that are peculiarly susceptible to medical treatment. Diphtheria is one of the best of such tests. A comparison of the insurance and noninsurance countries with regard to diphtheria morbidity and mortality has previously been made.²

According to the Annual Epidemiological Report of the League of Nations, previously quoted, there was no city in the United States or Canada that had a diphtheria mortality rate of more than 6 per hundred thousand in 1934, with the exception of New Orleans, with 6.2 and of Quebec with 12.4. On the other hand, the total mortality rate for diphtheria in fifty-two German cities was 11 per hundred thousand. In 121 English cities this rate was 11.6 per hundred thousand, and in fifty Spanish cities, without health insurance, the rate was 5.2. In Australia (without health insurance) the rate varied from 1.4 in Auckland to 8.5 in Perth, while Christchurch in New Zealand (without compulsory health insurance) had no deaths from diphtheria.

Tuberculosis is another disease in which the morbidity and mortality rates are affected by the character of medical service. A detailed comparison of the tuberculosis sickness mortality rates in insurance and noninsurance countries was published in *The Journal* of April 20, 1935.³ The recent report of the League of Nations confirms the conclusions there made that the rate of decline in deaths from tuberculosis is more rapid in noninsurance than in insurance countries. The effect of the colored population makes the comparison of tuberculosis mortality rates highly disadvantageous to the United States, but, if the white population alone is considered, the death rate from tuberculosis is lower

in nearly every section of the United States than in the European countries having elaborate systems of sickness insurance.

Infant mortality is also considered a general test of the quality of medical service. In 1934 the deaths of children under 1 year, per thousand live births, in the Union of South Africa was 61; Canada, 72; United States, 60; Australia, 44, and New Zealand, 32. These are all countries which do not have sickness insurance. The rate in some of the leading countries having highly developed systems of sickness insurance was as follows: Germany, 66; England and Wales, 59; Denmark, 64; Scotland, 78. Only three European countries had rates much below these. These were the Netherlands, 43; Sweden, 47, and Switzerland, 46.

Perhaps a fairer comparison is found when the statistics of infant mortality in the larger cities are compared. In the United States the mortality per thousand births of infants under 1 year of age was, in 1934, as follows:

Boston	57	Los Angeles	53
Chicago	48	New York	52
Cleveland	44	Philadelphia	54
Detroit	50	Toronto	48

In Australia and New Zealand the mortality in the same year was as follows:

Adelaide	40	Melbourne	48
Auckland	38	Perth	41
Brisbane	43	Sydney	44
Christchurch	39	Wellington	41

In none of these cities is there any system of compulsory sickness insurance. In the insured nations of Europe, fifty-two German cities had an infant mortality of 60; in 121 English cities, 63; in Berlin, 59; in Glasgow, 98, and in London, 67. In South America in Santiago, Chile, with a system of compulsory insurance there were 244 deaths per thousand of infants under 1 year. Buenos Aires in Argentina, with no insurance, had 63.

The fact that by all these tests the countries without sickness insurance consistently make a better showing than those in which a large percentage of the population are cared for under insurance systems would seem to justify the conclusion that the people generally receive a better medical service where private practice is maintained than where the physicians are required to practice under insurance regulations.

THE MEDICAL PRACTICE ACT

The following is the Medical Practice Act of Missouri as reprinted from the Revised Statutes of Missouri, 1929.

Medicine and Surgery

Section 9111. Practitioner shall be registered physician.—It shall be unlawful for any person not now a registered physician within the meaning of the law to practice medicine or surgery in any of its departments, or to profess to cure and attempt to treat the sick and others afflicted with bodily or mental infirmities, or engage in the practice of midwifery in the state of Missouri, except as hereinafter provided. (R. S. 1919, sec. 7330.)

Sec. 9112. State board of health to have supervision of registration.—The state board of health shall have general supervision over the registration of all practitioners of medicine, surgery and midwifery in this state. (R. S. 1919, sec. 7331.)

Sec. 9113. Examination—subjects to be passed—grade—recognition of certificates of other states.—All persons desiring to practice medicine or surgery in this state, or to treat the sick or afflicted, as provided in section 9111 of this article, shall appear before the state board of health, at such time and place as the

2. Influence of Sickness Insurance on Diphtheria Morbidity and Mortality, J. A. M. A. **104**:1335 (April 13) 1935.

3. Tuberculosis and Insurance, J. A. M. A. **104**:1423 (April 20) 1935.

board may direct and there shall be examined as to their fitness to engage in such practice. All persons appearing for examination shall make application in writing to the secretary of the said board thirty days before the meeting. They shall furnish satisfactory evidence of their preliminary qualifications, to-wit, a certificate of graduation from an accredited high school, or its equivalent. They shall also furnish satisfactory evidence of having attended throughout at least four terms of thirty-two weeks of actual instruction in each term and of having received a diploma from some reputable medical college that enforces requirements of four terms of thirty-two weeks of actual instruction in each term, including two years' experience in operative and hospital work at time of graduation; *provided* that the time of graduation has been since March 12, 1901, and two years' requirements if the date of the graduation is prior to March 12, 1901, and shall also furnish evidence of good moral character. The medical examination except that part which is practical, to be in writing and the questions and answers shall be kept on file by the state board of health, subject to public inspection, and shall be of elementary and practical character, but sufficiently strict to test the qualifications of the candidate as a practitioner, and shall embrace the subjects of anatomy, chemistry, physiology, therapeutics, obstetrics, gynecology, surgery, practice of medicine, bacteriology, medical jurisprudence and hygiene, and such other branches as the state board may direct; *provided*, that each applicant for license shall have two hours if necessary during which to answer the usual number of questions asked on each branch examined upon. The candidate shall be required to attain an average of seventy-five per centum of all subjects examined on, *provided* that he must not fall below fifty per centum on any one subject, before being granted a license; *provided*, however, that the examination of any applicant in therapeutics shall be conducted by the member or members of the said board who represent the system of medicine of which said applicant has been a student. If there shall be no representative of the school or system of which the applicant has been a student, the examination in therapeutics shall be conducted by an examiner appointed for that purpose by the governor of Missouri, but all examinations other than that in therapeutics shall be conducted as heretofore provided in this article. The board of health shall issue to such persons as they shall find upon examination to possess the requisite qualifications, a license to practice medicine and surgery in accordance with the provisions of this article, and the state board of health shall not be permitted to favor any particular school or system of medicine but all applicants shall be subjected to the same examination and the same degree of proficiency shall be required of all; *provided*, that in determining the qualifications necessary for registration as a qualified physician the state board of health may, at its discretion, accept the certificate of the national board of medical examiners of the United States, chartered under the laws of the District of Columbia, in lieu of and as equivalent to its own professional examination. Every applicant for a license upon the basis of such certificate shall, upon making application showing necessary qualifications, as above set out, be required to pay the same fee required of applicants to take the examination before the board. *And it is further provided* that the said board of health may under the regulations established by the board admit without examination legally qualified practitioners of medicine who hold certificates to practice medicine in any state or territory of the United States or the District of Columbia with equal

educational requirements to the state of Missouri and that extend like privileges to legally qualified practitioners from this state upon the applicant paying a fee of fifty dollars (\$50.00). (R. S. 1919, sec. 7332. Amended Laws 1921, p. 471; 1923, p. 2537; 1927, p. 296.)

Sec. 9114. Board of medical examiners—shall have certain rights.—The question as to whether any medical school is one entitled to recognition, by the state board of medical examiners, as a medical school of good standing and the action of said medical examiners in refusing a license to any applicant is hereby declared to be a question of fact and any person aggrieved by reason of the action of the board, shall have the right to have such question reviewed by suing out a writ of *certiorari* in the circuit court and such question shall be tried *de novo* by the court issuing such writ, and the court of review shall render such judgment as should have been rendered in the first instance. (Laws 1921, p. 471.)

Sec. 9115. Medical schools issuing diploma or certificate—misdemeanor.—Any officer, agent or employee of any medical school or college in this state, whether organized as a corporation, association, partnership, common law trust, or individually owned and operated, who knowingly permits the issuance of any diploma or any certificate of graduation from any such medical school or college as aforesaid to anyone, unless the recipient or beneficiary thereof has actually attended in good faith at least eighty per cent of each of four school years, each of not less than thirty-two weeks' extent in this or some other state, and has received instruction in and has satisfactorily passed all the courses and subjects purporting to be required by said school for completion of its course and has actually been granted a degree by vote of the trustees of said college or school, shall be guilty of a misdemeanor and punished by imprisonment in jail for a term of not less than three nor more than twelve months, or by a fine of not less than one hundred dollars nor more than one thousand dollars, or by both such fine and imprisonment. (Laws of 1927, p. 172, sec. 1.)

Sec. 9116. Diploma or certificate of medical school received without graduation—misdemeanor.—Anyone in this state, whether a resident or sojourner, who knowingly accepts or receives a diploma or certificate of graduation from any medical school or college in this or any other state, province or country, which can or may be used or offered as a means of obtaining an examination before any state board of medical examiners for a license to practice medicine or surgery in Missouri or elsewhere, without having first attended in good faith at least eighty per cent of four school years, each of not less than thirty-two weeks in extent, of a medical school or college in this or some other state, province or country, and without having satisfactorily passed all the subjects and courses which purport to be required for receipt of the degree of doctor of medicine, and has actually graduated therefrom, shall be guilty of a misdemeanor and punished by imprisonment in jail for a term of not less than three nor more than twelve months or by a fine of not less than one hundred dollars nor more than one thousand dollars, or by both such fine and imprisonment. (Laws of 1927, p. 172, sec. 2.)

Sec. 9117. License to be recorded with county clerk—recording fee—noncompliance a misdemeanor—penalty.—Every person holding a license from the state board of health shall have it recorded in the office of the county clerk of the county in which he resides, and the record shall be indorsed thereon. And the clerk is authorized to charge a fee of one dollar for re-

cording each license, to be paid by the person offering such license for record. Any person removing to another county to practice medicine or surgery shall have his license recorded in the county to which he removes, and the holder of said license shall pay said clerk of said county the usual fee for making the record. The county clerk shall keep, in a book provided for that purpose, a complete list of the licenses recorded by him, with the date of issue. Any person neglecting to record his license as in this section provided before entering upon the practice shall be guilty of a misdemeanor, and, on conviction thereof, shall be fined not less than fifty dollars, and on failure to record said license for thirty days after such conviction, such person shall be liable to a fine of not less than one hundred dollars. (R. S. 1919, sec. 7333.)

Sec. 9118. Practice of medicine and treatment of sick, etc., without license prohibited—penalty.—Any person practicing medicine or surgery in this state, and any person attempting to treat the sick or others afflicted with bodily or mental infirmities, and any person representing or advertising himself by any means or through any medium whatsoever, or in any manner whatsoever, so as to indicate that he is authorized to or does practice medicine or surgery in this state, or that he is authorized to or does treat the sick or others afflicted with bodily or mental infirmities, without a license from the state board of health, as provided in this article, or after the revocation of such license by the state board of health, as provided in this article, shall be deemed guilty of a misdemeanor, and punished by a fine of not less than fifty dollars nor more than five hundred dollars, or by imprisonment in the county jail for a period of not less than thirty days nor more than one year, or by both such fine and imprisonment for each and every offense; and treating each patient shall be regarded as a separate offense. Upon receiving information that any provision of this section has been or is being violated the secretary of the state board of health shall investigate the matter and upon probable cause appearing shall, under the direction of the board, file a complaint with the prosecuting or circuit attorney in the county or city where the alleged offense occurred. Any person filing or attempting to file as his own, a license of another or a forged affidavit of identification, shall be guilty of a felony and upon conviction thereof, shall be subjected to such fine and imprisonment as are made and provided by the statutes of this state for the crime of forgery in the second degree: *Provided*, that physicians registered on or prior to March 1, 1901, shall be regarded for every purpose herein as licentiates and registered physicians under the provisions of this article. (R. S. 1919, sec. 7334. Amended, Laws, 1923, p. 252; 1927, p. 296.)

Sec. 9119. Fees—disposition of same.—In order to provide the means to carry out and maintain the provisions of this article, the said board shall charge each person applying to and appearing before it for examination for a license to practice medicine and surgery a fee of fifteen dollars, and should such examination prove unsatisfactory and the state board refuse to issue a license thereon, the applicant failing to pass such examination may return at any meeting within the next twelve months thereafter and be examined without extra charge, but no temporary license shall be issued to such person. All fees so received from applicants for license shall be paid into the state treasury and shall be held by the state treasurer as a separate fund to be disbursed only in payment of expenses of maintaining said board of health, and said fund is hereby appropriated for said purpose, and no other money shall be paid out of the state treasury for the

provisions of this article. The state auditor shall issue his warrant on the state treasurer for payment out of said fund on the certificate of the president and secretary of the state board of health. (R. S. 1919, sec. 7335.)

Sec. 9120. Authority of state board of health to issue or revoke licenses to practice medicine.—The board may refuse to license individuals of bad moral character, or persons guilty of unprofessional or dishonorable conduct, and they may revoke licenses, or other rights to practice, however derived, for like causes, and in cases where the license has been granted upon false and fraudulent statements, after giving the accused an opportunity to be heard in his defense before the board as hereinafter provided. Habitual drunkenness, drug habit or excessive use of narcotics, or producing criminal abortion, or soliciting patronage by agents, shall be deemed unprofessional and dishonorable conduct within the meaning of this section. At least twenty days prior to the date set for any such hearing before the board for the revocation of such license, the secretary of the board shall cause written notice to be personally served upon the defendant in the manner prescribed for the serving of original writs in civil actions. Said notice shall contain an exact statement of the charges and the date and place set for the hearing before the board. If the party thus notified fails to appear, either in person or by counsel, at the time and place designated in said notice, the board shall, after receiving satisfactory evidence of the truth of the charges and the proper issuance and service of notice, revoke said license. If the licentiate appear either in person or by counsel, the board shall proceed with the hearing as herein provided. The board may receive and consider depositions and oral statements and shall cause stenographic reports of the oral testimony to be taken and transcribed, which, together with all other papers pertaining thereto, shall be preserved for two years. If a majority of the board are satisfied that the licentiate is guilty of any of the offenses charged, the license shall be revoked for such period of time as may be agreed upon. Any person whose license has been or shall be revoked by the board shall have the right to have the proceedings of said board revoking his license and all the evidence, therein reviewed, on a writ of *certiorari*, by the circuit court of the county in which said board held its session when said license was revoked. Said writ shall issue upon the petition of the person whose license shall have been revoked to said court or to the clerk thereof in vacation, and shall command the said board and the secretary thereof to certify to said court the record and proceedings of said board, and a complete transcript thereof, and of all the evidence therein pertaining to the revocation of said license. The petitioner for the writ of *certiorari* shall set forth the rights of the petitioner and the injuries complained of by him and shall be verified by him. If the proceedings of the board shall be sustained or upheld by the circuit court, its orders, decisions or judgments revoking said license shall remain and continue in full force and effect. Any such license so revoked by the board shall, pending said review on *certiorari*, stand revoked and so remain until the proceedings of the board relating thereto shall be quashed or otherwise annulled by the circuit court on said writ of *certiorari*. Testimony may be taken by deposition, to be used in evidence on the trial of such charges before the board in the same manner and under the same rules and practice as is now provided for the taking of depositions in civil cases. (R. S. 1919, sec. 7336.)

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL
FOR 1936

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 19, 1935.

Montgomery County Medical Society, January 7, 1936.

Ste. Genevieve County Medical Society, January 8, 1936.

Camden County Medical Society, January 9, 1936.

Dent County Medical Society, January 13, 1936.

Perry County Medical Society, January 17, 1936.

Webster County Medical Society, February 4, 1936.

Moniteau County Medical Society, February 29, 1936.

Benton County Medical Society, April 6, 1936.

Phelps-Crawford County Medical Society, April 6, 1936.

Jefferson County Medical Society, April 20, 1936.

SOUTH CENTRAL COUNTIES MEDICAL
SOCIETY

The South Central Counties Medical Society met at the Freeland Hotel, Houston, August 6. After lunch the meeting was called to order by the president, Dr. A. H. Thornburgh, West Plains, in the Melba Theater.

It was voted to hold the next meeting at Mountain Grove in October.

Dr. Duff S. Allen, St. Louis, spoke on "The Differential Diagnosis of Acute Abdominal Conditions" and brought out many points that all have been taught but have sometimes forgotten and many new points well worth remembering.

Dr. Malone C. Stroud, St. Louis, presented the subject "Allergy" and explained how it enters into cases more often than is realized. He prefaced his remarks by showing motion pictures of experiments on guinea pigs and rabbits which helped in clarifying the subject.

Dr. Allen presented a second discussion on "Goiter" bringing out some recently developed facts and showing moving pictures illustrating a number of cases including one of myxedema.

A vote of thanks was given the speakers and the meeting adjourned at 5 p. m.

Those present were Drs. R. A. Ryan and his son, R. A. Ryan, Jr., H. G. Frame, R. W. Denney and A. C. Ames, Mountain Grove; J. C. B. Davis, Willow Springs; M. C. Gentry, Ava; E. G. Beers, Seymour; E. C. Bohrer and A. H. Thornburgh, West Plains; L. M. Dillman, J. R. Womach, W. F. Herron and W. A. Covert, Houston; R. E. Breuer, Newburg; A. S. McFarland, Rolla; Duff S. Allen, C. Malone Stroud and Del Martz, St. Louis.

A. C. AMES, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

15th Annual Meeting, Atlantic City, 1937

President, Mrs. Robert Fitzgerald, Wauwatosa, Wisconsin.

President-Elect, Mrs. Augustus Kech, Altoona, Pennsylvania.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

13th Annual Meeting, Cape Girardeau, 1937

President, Mrs. Walter Kirchner, St. Louis.

President-Elect, Mrs. Charles Werner, St. Joseph.

Mrs. Walter Kirchner, St. Louis, president of the Auxiliary, spent the last two weeks in June painting in Arcadia, and is spending the month of August in San Diego, California. Before leaving Missouri she sent letters to the county presidents with plans and suggestions for the year and announced September 24 as the tentative date for the fall board meeting. It is planned to publish the *Bulletin* early in October.

Mrs. W. C. Cheek, Springfield, chairman of public relations for the Auxiliary, is arranging for a talk to be given in the Woman's Building at the Missouri State Fair. Dr. E. J. Goodwin is securing a physician to speak, and the official hostess of the Fair, Mrs. Greer, Sikeston, has promised every possible courtesy. Mrs. Cheek and Mrs. Paul Cole and other members of the Auxiliary will have a table with a display of *Hygeia* and other health literature.

The Jackson County Medical Society has requested the complete file of the *Bulletin* of the Missouri Auxiliary which will be placed on file in the medical library in Kansas City.

Mrs. David S. Long, Harrisonville, vice-president of the Woman's Auxiliary to the American Medical Association, has been invited to be the speaker at the open meeting to be held by the Utah State Auxiliary in Salt Lake City on September 4. Mrs. Long plans to accept the invitation.

CASE FINDING METHODS FOR DIAGNOSIS
OF TUBERCULOSIS

According to J. Burns Amberson, Jr., New York (Journal A. M. A., July 25, 1936), pulmonary tuberculosis remains the first cause of death in young adults. From 60 to 70 per cent of tuberculous people, even intelligent ones, are unaware of symptoms of serious disease until the pulmonary lesions are moderately or far advanced. Most cases will not be diagnosed early except by case finding methods based on a familiarity with the characteristics of tuberculosis as a community disease as well as an individual lesion. The simplest and most effective method of case finding consists of X-ray surveys of the chests of selected susceptible groups, in some instances with preliminary tuberculin testing. In the yield of cases from such surveys, the proportion found in the earliest stage is 70 per cent or more. If the cases found are skilfully studied and promptly and properly treated, when necessary, the accomplishment of actual cure of the disease and prevention of spread of the infection to others exceeds that of any other known methods.

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THE CARDIOTOXIC GOITER

ARTHUR E. HERTZLER, M.D.

HALSTEAD, KANSAS

All older practitioners remember the time when goiters, unless they were definitely thyrotoxic, were regarded as innocent. Internists as a class denied the relation of goiters to failing hearts long after surgeons noted satisfactory improvement in the cardiac function after removal of goiters supposedly toxic. Now, happily, all recognize the relationship and search for the possible existence of a goiter in obscure cardiac disturbance.

We must go back much farther than has been our wont in studying the effect of goiter on the heart. Old bosselated goiters, supposedly innocent throughout life, are actually constantly at work. The so-called nontoxic nodular goiters frequently pass directly to a cardiotoxic state without there having been compelling evidence of thyroid toxicity, in the ordinary sense, at any period of the disease. A slight increase in pulse rate and some nervousness now and then are unlikely to cause great concern in the minds of either patient or doctor until a failing heart compels recognition of the baneful effect of the goiter.

True, the majority of cases give indubitable evidence of thyrotoxicosis at some period during their course; yet a considerable proportion of patients who come to the clinic because of impaired health are unaware of the presence of thyroid disease. Because the goiter is small and the general symptoms of nervousness are indefinite (perhaps some loss of weight), the cardiac disturbance is not ascribed to the goiter even though an enlargement is discovered.

Even the more acute diffuse goiter slumbers on and sooner or later develops degeneration identical with that of degenerative toxic glands. Thus the finale of a Graves' disease, just as certainly as that of colloid goiter, is a cardiac death.

More treacherous still are those thyroid pro-

cesses which, never reaching the clinical dignity of goiter, undergo changes that attract the attention of neither patient nor doctor until cardiopathies start both of them in search of the cause. The clinical history is easy enough to trace when a palpable goiter is in evidence; but when a goiter has not been discovered or even as much as suspected, even after the cardiac symptoms have become evident, the case is disconcerting. Sometimes it is necessary to diagnose a goiter heart from the nature of the general symptoms coupled with the character of the cardiac disturbances, and then proceed to operation even though the thyroid is not palpable.

Clinical Course.—An attempt to study the genesis of the goiter heart in the clinic is beset with many difficulties chiefly because we do not know with what we are dealing. We may assume that there are two processes at work. In one there is merely the stimulation by degenerative substances or by oversecretion which is seen in Graves' disease. The rapid rate can continue for many years without permanent damage. In the other process there is no notable disturbance of rate until the first symptoms are expressed in terms of disturbed rate and volume.

As long as the heart remains regular in rate and volume there is no way of knowing whether it is suffering or not. The electrocardiograph has failed to give useful evidence. However, if the heart becomes intermittent in rate and volume, in the absence of evidence of organic heart disease, we must assume it is due to intoxication from the goiter. When evidences of decompensation develop we know for sure that the heart is failing. However, let it be noted, that decompensation in the presence of a goiter does not make it a goiter heart. One must think of other possible causes of decompensation.

Just how far back one need go to study the effect of the goiter on the heart is difficult to say. One can learn much by observation of patients in the clinic. In those cases of irritable heart associated with the simple goiter of adolescence the patient's cheerful countenance disposes one

to conclude that rapid hearts are of purely nervous origin. In cases of acutely toxic goiters allied with rapid heart the patient's expression is apprehensive. Here also it may be that the heart is whipped up through the action of the controlling nerves. Sedatives and rest in bed may be followed by marked improvement in a very few days.

The cardiotoxic patient has a look of apprehension. It differs from the expression of nervous excitation, just as the expression of a patient with cancer of the stomach differs from that of one who has a pylorospasm and fears he has a cancer. This is particularly true of patients who do not associate their trouble with a goiter, either because they regard the goiter as innocent or because they are unaware of the existence of any thyroid involvement. Those who have long had a toxic goiter with a rapid heart associate the two and accept the advancing heart trouble as a matter of course. They are likely to have an associated loss of weight which is evident at a glance. This loss of weight makes even the small goiter visible. All cases have in common an appearance of senility far beyond their years. The inelasticity of the skin emphasizes this. And, it may be added, that as surgical risks they rate their apparent age irrespective of their calendar age.

In the more advanced cases the increasing dyspnea may distort the facial expression by intensified distress and cyanosis.

That the heart disturbance in these cases is due to decompensation is attested by the fact that these patients, even when dropsical, may recuperate sufficiently by the use of sedatives and bed rest to make removal of the gland possible. That the condition is due, even in these stages of marked cardiac disturbance, to something the goiter continues to deliver to the patient is evident because careful thyroidectomy allows the heart to return to an astonishing degree of efficiency.

Then follows the stage of complete decompensation with edema in the various tissues and cavities, but the face does not become edematous and this makes it possible to exclude other types of dropsy, notably that due to nephritis. These cases frequently become mentally confused due to disturbed circulation. The violent delirium and hyperpyrexia of the terminal state are lacking. One curious feature of these cases is noteworthy: The violent terminal symptoms may be associated with a rapid reduction of the size of the goiter. This is apparently due to a rapid absorption of a destructive secretion.

Treatment.—If the degenerating goiter is the cause of the cardiac disease obviously the indication is to remove the goiter. For many years we were restrained from removing all the gland

because of the fear of producing a myxedema. Kocher, more than fifty years ago, described a state he called cachexia thyreoprivia, because some of the adolescent patients on whom he did a complete thyroidectomy developed a cretinoid state. He neglected to note that these dire results occurred only in adolescents and did not occur in adults.

Since we know that total thyroidectomy can be done in adults with impunity obviously there is no excuse to leave any of the gland; no excuse at least other than technical expediency. Total removal does require a more exact technic, naturally, than just cutting off the tops of the lobes.

The essential feature in total thyroidectomies is sharp dissection. This enables the operator to isolate and grasp each individual vessel before it is cut. If one makes it a rule to grasp only an isolated vessel he may be sure that he is not injuring the nerve. By sharp dissection one can stay within the surgical capsule hence the parathyroids are not endangered.

Because of the epinephrin used in local anesthesia, the tissues are made relatively bloodless which makes the identification of the individual vessels much easier. If in addition the operator will dispense with all drapery except a single sterile sheet the operation will be made much more simple. I recently watched an operator use no less than seven layers of sterile linen about the operative field. The result was that he was compelled to work in the bottom of a funnel formed by the excess drapery.

Many operators fear the end results of the radical operations chiefly because they fear what the fate of the recurrent nerve will be. The nerve is not endangered during the operation. A considerable number, say one in four or five, will show some hoarseness about the second or third day. Of course disturbed movements of the vocal cords are associated. This disturbance usually is greatly lessened by the time the patient leaves the hospital. In some, more or less disturbance continues for several months. One may assume that the cord disturbance is due to edema of the tissue about the nerve. There is no way of preventing this.

A point in the technic worth mentioning is that the medial branch of the inferior thyroid artery is apt to give the most trouble. If this is cut before it is grasped or if it escapes adequate ligation before it is released great difficulty may be experienced in securing it without injuring the nerve. In ligating close to the nerve its function may be disturbed without actually injuring it. These disturbances are usually temporary. They appear at once which distinguishes them from those caused by postoperative edema.

In some cases cord disturbances develop after six months or longer. These are progressive and permanent. One may assume that these are due to inclusion of the nerve in scar formation. Bilateral total cord paralysis is of course attended by dyspnea. These cases fortunately are easily remedied by the complete removal of one cord. This allows free respiration and the cord remaining, although stationary, makes satisfactory phonation possible.

RENAL PHYSIOLOGY

CLINICAL IMPLICATIONS OF RECENT DEVELOPMENTS

THOMAS FINDLEY, JR., M.D.

ST. LOUIS

To clinicians puzzled by the complex disturbances associated with bilateral renal disease it may seem that physiologists have not described the mechanism by which the normal kidney functions with sufficient clarity to permit an understanding of pathological processes. It is true that the kidney has been exceedingly reluctant to give up its secrets. In 1666 Malpighi published his description of those glomerular bodies in the renal cortex which bear his name but it was not until 1842 that Bowman was able to demonstrate the structural relationship between them and the tubules. Now, nearly one hundred years later, we are still confronted with some of the fundamental problems which met the English surgeon and his German contemporaries, Ludwig and Heidenhain. It was obvious from the beginning, for example, that the function of the renal tubule could not be understood until some conviction had been reached concerning the nature of glomerular activity, but only recently has a virtual unanimity of opinion regarding this most fundamental aspect of renal physiology been established. It is the purpose of this paper to review briefly the major contributions to our knowledge of this unique structure and to indicate their applicability to clinical medicine.

The renal glomeruli may individually appear insignificant but collectively they constitute an organ of astonishing size, as shown with particular clarity by Vimtrup's recent anatomical studies.¹ He emphasizes that each of the many capillary loops in a glomerulus is separately invested with its own sheath of capsular epithelium, an arrangement which obviously provides a maximum surface area for the formation of glomerular fluid. Reasonable assumptions as to number, length and diameter of these

vessels allow him to compute that the surface area of all the intraglomerular capillaries in both human kidneys is probably about 1.5 square meters. A membrane of this size which separates the blood stream from the interior of the urinary tract must possess considerable importance.

Most of our knowledge concerning the physiological properties of this glomerular membrane has come from experimental laboratories. It is beyond the scope of this paper to review the experimental data which has led to the universal acceptance of the view that the glomerulus is a mechanical ultrafilter which supplies a large volume of protein-free plasma to the tubules for elaboration into urine. This has been recently summarized by Richards² who has himself supplied so much of the necessary proof. Our present concern is with the variations in this simple mechanical ability of the glomeruli to separate water and nonprotein bodies from the blood stream.

Variations in the Size of the Glomerular Filter.—Vimtrup's estimate of the probable size of the glomerular membrane does not carry with it the implication that this is a fixed unvarying attribute. There is on the contrary a considerable body of indirect but persuasive evidence to indicate that the effective filtering surface in the malpighian bodies is adjustable within wide limits to the excretory needs of the organism. About 15 years ago Richards and Schmidt discovered that the kidney of a living frog could be subjected to direct microscopic visualization and in the course of their studies observed spontaneous opening and closure of glomerular capillaries.³ This phenomenon of "glomerular intermittence," as they termed it, was abolished or accentuated by a variety of nervous and chemical influences, and it seemed to them to constitute one mechanism whereby the excretory capacity of the kidney could be delicately correlated with the demands of the body. Khanolkar⁴ then showed that in rabbits only a fraction of the available glomeruli are functioning at a given time, and Hayman and Starr⁵ have obtained evidence from the same animal that an increase in renal blood flow is usually accompanied by an increase in the number of functioning glomeruli and in urine flow. In general it is believed that agents which dilate blood vessels tend to increase the number of functioning glomeruli while vasoconstrictor stimuli decrease them, although it is admittedly difficult at the present time to harmonize this conception of a variable filtration surface with the undoubted constancy of creatinine excretion, a substance supposed by many to be eliminated solely through the glomeruli. Nevertheless these observations lend to the glomerular

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membrane an aspect of elasticity which explains partially at least the large reserve force which the kidneys possess.

The ability of the normal kidney to perform its excretory duties with but a fraction of its total available filtration surface affords one explanation of why as much as three fourths of the renal mass can be experimentally destroyed before uncompensated renal failure occurs. Oliver and Luey⁶ have recently described another phenomenon which may serve to combat the deleterious effects of glomerular destruction. By means of wax reconstructions of single units from diseased kidneys they have made morphological observations which are unique in that they run counter to usual teachings. It is commonly believed, for example, that when a glomerulus is destroyed its corresponding tubule atrophies but these authors have shown on the contrary that sometimes in Bright's disease not only may the tubule persist after glomerular atrophy but that the proximal convolution may even enlarge to as much as fifteen times its original size, presumably as a compensatory effort. It scarcely seems as though this irregular tubular hypertrophy can be of any great aid in prolonging the life of a patient with progressive renal disease but it may be so, and the observation is of great biological interest in view of the work that has been recently done by Marshall and others⁷ on the function of the aglomerular kidneys of certain fish, organs in which tubular secretion cannot be denied.

Variations in Permeability of the Glomerular Membrane.—Since the composition of glomerular fluid is that of an ultrafiltrate of plasma made through collodion or cellophane membranes⁸ it contains at the most only minute amounts of protein. All available evidence indicates that renal proteinurias are of glomerular origin; indeed, it has been impossible to cause protein to appear in the urine of animals whose kidneys are of the tubular type by any means whatsoever.⁹ Presumably, any protein whose molecular weight is less than that of hemoglobin will pass through the normal glomerular membrane¹⁰ but the Bence-Jones body is the only one of clinical importance in this class. Other albuminurias are characterized by the presence in the urine of normal plasma proteins¹¹ and are to be attributed to increased permeability of the glomerular membrane rather than to the presence of abnormal proteins in the blood stream. The association of proteinuria with processes causing inflammation, poisoning or anoxemia of the glomerular tufts is therefore understandable and Starr,¹² who produced albuminuria with vasoconstricting drugs, explains the mild proteinurias asso-

ciated with emotion, severe exercise and reflex influences on the basis of exaggerated "glomerular intermittence."

The statement that proteinuria implies glomerular damage may seem at variance with the usual conception of lipoid nephrosis as a purely tubular disorder but the development of new staining technics has led to a more frequent recognition of glomerular lesions in those instances of so-called genuine nephrosis; and the opinion is growing that this disorder is accompanied by a form of glomerular inflammation.^{13, 14} Nor need it be postulated that in nephrosis the renal capillaries are more permeable to protein than are capillaries elsewhere in the body. As massive a proteinuria as 5 per cent in a patient who voids 1500 cc. of urine in twenty-four hours and has a glomerular filtration rate of 100 cc. per minute (vide infra) can be accounted for by a glomerular filtrate protein concentration of 50 mgm. per cent, a figure equivalent to the protein content of normal spinal fluid and to that of many samples of subcutaneous edema fluid.

Variations in the Rate of Glomerular Filtration.—Of the utmost clinical interest are the many recent attempts to measure the rate of glomerular filtration, an objective which if attained would afford an extremely useful test of renal function. In 1926 Rehberg¹⁵ suggested that this could be done if we knew of a substance which was freely filterable across the glomerular membrane (i. e., which occurred in plasma and glomerular fluid at equal concentrations) and was neither secreted nor reabsorbed by the renal tubules. Such a substance would pass straight from glomeruli to bladder without addition or subtraction on the part of the intervening renal tubules; any increase in concentration must therefore be due to the reabsorption of water by the tubule cells. On a purely empirical basis Rehberg felt that creatinine met these theoretical requirements and pointed out that the following equation must therefore be true:

$$\frac{\text{Volume} \times \text{creatinine content (glomerular filtrate)}}{\text{Volume} \times \text{creatinine content (bladder urine)}} =$$

Transposing and substituting creatinine content of plasma for that of glomerular fluid, since they are equal:

$$\frac{\text{Volume (glomerular filtrate)}}{\frac{\text{Volume} \times \text{creatinine content (bladder urine)}}{\text{Creatinine content (plasma)}}} =$$

Or, more simply:

$$\frac{\text{Volume of glomerular filtrate, as cc. per minute}}{\text{UV}} =$$

—, Where U and B are mgm. creatinine per cent B in urine and plasma respectively and V is the number of cc. of urine per minute.

To determine the rate of glomerular filtration then one has only to collect the urine over a measured period of time, divide the concentration of creatinine in the urine by that in the plasma, and multiply by the volume of urine passed per minute. Hanzal and Hayman¹⁶ have devised a simplified technic for performing this test. In normal adults the usual figure thus obtained is about 150 cc. per minute. Variations of from 100 to 200 cc. per minute are commonly found, however, and values as low as 80 must not be taken to indicate renal damage without confirmation. Reduction in renal blood flow, as in chronic passive congestion, may depress the capacity of the kidney to a considerable degree without implying any actual decrease in functional renal tissue, and Hayman and Johnston¹⁷ have pointed out that in such toxic states as pneumonia and pyelonephritis the permeability of the tubules to creatinine may be so increased that low clearances result without any diminution in the actual number of open glomeruli. The production of 200 cc. of glomerular filtrate a minute is not impossible since this requires only that each glomerulus in the human kidney produce 0.006 cc. of filtrate per hour, and Richards has repeatedly collected nearly this amount from single glomeruli in frogs.²

It must be borne in mind however that there are certain theoretical objections to the acceptance of creatinine as a test substance. It is very difficult to prove that a given urinary constituent is unaffected by tubular activity, but it has been thought that if two or more substances could be shown to undergo the same degree of concentration in respect to their plasma levels it would be permissible to suppose that each had been excreted solely through the glomeruli since it is extremely unlikely that the vital activities of the tubule cells would affect them all in identical fashion. Among the substances whose rates of excretion have been correlated with that of creatinine are xylose, sucrose, raffinose, inulin, certain organic iodine compounds and sodium ferrocyanide; the results indicate differences in the renal activities of various animal species.

In the rabbit¹⁸ the plasma clearances* of

*Even should one not accept Rehberg's contention that tubular activity plays no part in the elimination of creatinine, the formula
$$C = \frac{U \times V}{P}$$
 may still be used as a general expression of the excretory capacity of the kidney. Used in this broad sense it is known as the "creatinine clearance test" and denotes the volume of blood freed or "cleared" of its creatinine content in a unit of time. Thus, to say that the creatinine clearance is 150 cc. per minute is to mean that the kidneys excrete in one minute as much creatinine as is contained in 150 cc. of blood. This statement carries with it no commitment as to how the kidney performs this task, and the formula is applicable to any urinary constituent whatever (viz., the urea clearance test, so popularized by Van Slyke¹⁹ as a general test of renal function). It is only when the test substance can be supposed to be unaffected by tubular activity that the formula is used as a measure of glomerular filtration rate.

inulin and creatinine are identical, as are the clearances of inulin, creatinine, sodium ferrocyanide and Skiodan (sodium mono-iodomethane sulphonate) in the dog.^{20, 21, 22} All agree that such sugars as xylose, sucrose and raffinose are partially reabsorbed by the tubules although formerly it was thought that they were ideal test substances. To these animals then the Rehberg hypothesis is apparently applicable; that is to say, the rate of creatinine excretion can be used as a measure of glomerular filtration. As a corollary, it follows that any substance whose plasma clearance exceeds that of creatinine must be secreted by the tubules to that extent at least.

In man, however, Shannon²³ has shown that creatinine is excreted more efficiently than inulin and he presents indirect evidence to show that this excess moiety of creatinine is contributed to the urine by tubular activity. In this respect, curiously enough, the human kidney more closely resembles that of the dog-fish than that of the rabbit or dog. There still remains the possibility that this difference between the clearances of inulin and creatinine is due to the reabsorption of the former rather than to the secretion of the latter, and until this dilemma is solved one cannot accept the use of the creatinine clearance as a measure of filtration rate in humans as confidently as in dogs. It does however parallel the changes in the glomerular filtration rate and, as usually done, probably estimates it within 25 per cent of the true value. Even with these limitations it must be regarded as a useful clinical tool. Theoretically, the rate of glomerular filtration lies closer to the plasma clearance of inulin than to that of creatinine but the quantitative estimation of inulin in blood and urine is so difficult that this substance probably will not come into general use.

The Choice of Renal Function Tests.—The theoretical limitations of the creatinine clearance test and the analytical difficulties involved in the use of inulin are good reasons for preferring the urea clearance as a general measure of kidney function. Since about half of the filtered urea is reabsorbed by the renal tubules the normal urea clearance value is about half the creatinine figure of 150. (When urine flow is low an even higher percentage of urea diffuses back into the blood stream; hence the necessity for distinguishing between the normal "maximum" urea clearance of 75 cc. per minute at urine flows of 2 cc. per minute and over, and the "standard" urea clearance normal of 54 cc. per minute at rates of less than this.) When observed figures are expressed in terms of percentage of normal, however, the results of the urea and creatinine tests are equal and interchangeable.²⁴

Any of these clearance tests unfortunately re-

quire such expert chemical assistance as to place them beyond the use of the average practitioner. Important as they have been to the physiologist seeking to unravel the mysteries of renal activity they represent refinements which are not indispensable to the clinician who wishes to know whether a given pair of kidneys are functioning adequately or not. Comparative studies of renal function tests^{25, 26} agree that the most sensitive index of renal competence is the ability of the kidneys to elaborate a concentrated urine. Hence it follows that the first indication is the simple concentration test. If after a twenty-four hour period of dehydration the patient's urine attains a specific gravity of 1.026 or more, it may be assumed that renal function is adequate and nothing more need be done. If however this figure is not reached, particularly if the patient is edematous, a check should be employed and for this purpose it appears that the fractional phenolsulphophthalein test of Chapman and Halsted²⁷ gives results approximately as reliable as those of the urea clearance test. These authors have shown that the sensitivity of the so-called PSP test is greatly enhanced if the dye is given intravenously and the amount eliminated in the first 15 minutes determined; a recovery of less than 30 per cent indicates impaired function. The usual method of making collections for two one-hour periods fails to detect mild kidney damage and isolated analysis of blood for retained nitrogen are practically worthless in the diagnosis of early renal disease.

SUMMARY

1. The glomerular membrane of the mammalian kidney acts as a mechanical ultrafilter. It does not exist in the kidneys of certain lower species and evidence is presented to show that in humans its function may be partially assumed by the renal tubule.

2. Its effective surface area probably varies widely in accordance with the excretory needs of the body.

3. Clinical albuminurias are due to increased permeability of the capsular epithelium.

4. The creatinine clearance test of Rehberg affords an accurate measure of the rate of glomerular filtration in the dog and the rabbit but probably only approximates it in humans. The use of inulin for this purpose is theoretically more sound.

5. Among the various clinical tests of renal function the concentration test and the urea clearance are the most reliable. The fractional PSP test may be substituted for the latter with little loss of accuracy.

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R. A. Vonderlehr, Washington, D. C. (*Journal A. M. A.*, Sept. 5, 1936), points out that the provisions of the Social Security Act enable health departments throughout the country to strengthen all phases of public health work and suggests that these provisions should at the same time permit of a sound development of measures directed against syphilis.

CARCINOMA OF DERMOID CYST OF OVARY

REPORT OF CASES

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Dermoids comprise about 10 per cent of all ovarian tumors and they are usually classified as benign. Malignancy arising in a dermoid cyst of the ovary is not frequently reported but it does occur.

The incidence of carcinomatous change occurring in dermoid cysts of the ovary is placed at from 1 per cent by Martzolf¹ to 5 per cent by Weiner.² The latter figure may be none too high when it is considered that many dermoids are removed, opened and thrown away without further microscopic examination.

The clinical differentiation of benign dermoid cyst of the ovary and malignancy of dermoid cyst of the ovary is almost impossible except in cases where the carcinoma has penetrated the wall of the cyst or has given rise to palpable metastatic nodules in the adjacent organs and where there is a history of abdominal tumor of long standing with recent rapid growth associated with pain and cachexia. As a rule the diagnosis is made by the pathologist after a study of the sections but occasionally it may be made by gross inspection of the tumor. Almost always the diagnosis comes as a surprise.

The malignant changes usually appear grossly as a few areas of vegetations on the lining of the cyst with a simple thickening of an area of the wall.

The age incidence apparently follows the same general rule of all carcinomata. Masson and Ochsenhirt³ in reviewing the literature find the youngest reported at age 20 and they themselves report the oldest at age 67.

The prognosis is very grave in these cases. Deaver⁴ states that the majority have a life expectancy of only two years. Martzolf¹ gives the mortality as 100 per cent.

At Research Hospital, in the period 1924 to 1935, inclusive, forty-nine dermoid cysts of the ovary have been encountered at operation and one at autopsy. Of these four have been diagnosed as carcinoma of dermoid, three of the surgical specimens and the one autopsy specimen, an incidence of 8 per cent.

CASE REPORTS

Case 1. A white woman, aged 56, entered Research Hospital giving a history of intermittent pains in the lower abdomen, loss of forty pounds of weight and increase in the size of the abdomen, all during nine weeks previous to entrance. Physical examination revealed a

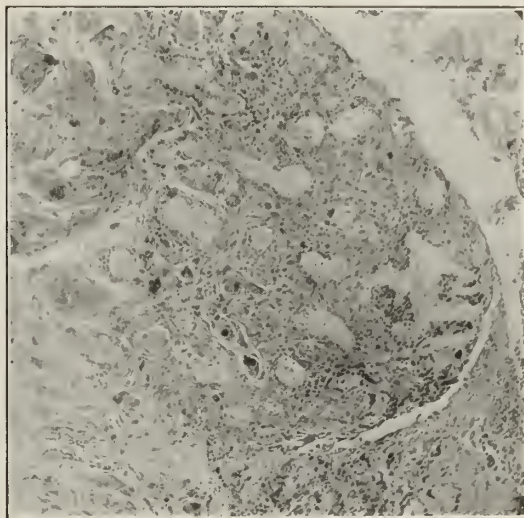


Fig. 1. A section of the wall of the dermoid cyst in case 1 showing typical squamous cell carcinoma.

large, firm mass in the lower abdomen. In fourteen days the patient expired. Autopsy revealed a large mass involving the right ovary with metastatic growths on the visceral and parietal peritoneum, diaphragm, liver, gallbladder, urinary bladder, uterus and adnexa. This mass was found to be a dermoid cyst containing caseous material, hair and bone. The wall was very thick and infiltrated with tumor tissue. Microscopic examination showed a typical squamous celled carcinoma of the wall of the dermoid (figure 1).

Case 2. A white unmarried woman, aged 66, entered Research Hospital complaining of pain and a mass in the left lower abdomen of about six weeks' duration. Physical examination revealed a tender mass in the left lower abdominal quadrant. An operation was performed and a large mass 15 cm. in diameter was removed from the left adnexal region. This mass contained caseous material, a large ball of hair and spicules of bone. One raised area was found in the wall which presented a granular, rather soft, cut surface. Microscopical examination showed a typical squamous cell

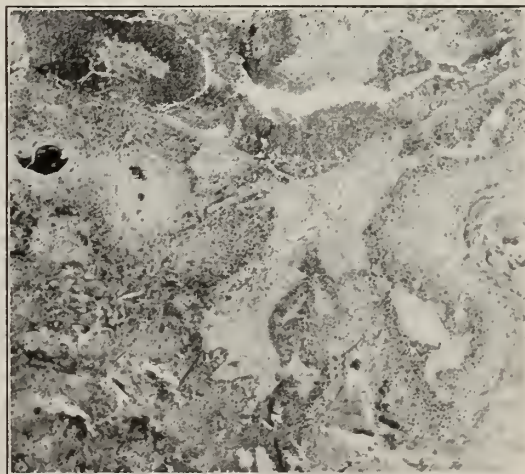


Fig. 2. A section of raised area from wall of dermoid cyst in case 2 showing carcinoma with "pearly body" formation.

From the William Volker Laboratory of the Research Hospital.



Fig. 3. A section from thickened portion of wall of dermoid cyst in case 3 showing carcinoma of poorly differentiated type.

carcinoma with "pearly body" formation (figure 2). This patient is living and symptom free twenty months after operation.

Case 3. A white woman, aged 64, entered Research Hospital complaining of a sensation of weight in her pelvis, low lumbar backache, loss of ten pounds in weight, urinary frequency and a general run down feeling. All symptoms had developed three months prior to entrance. Physical examination revealed a prominence of the lower abdomen and a vague tenderness over the suprapubic region. Surgery was resorted to and a mass the size of a grapefruit was removed from the right adnexal region. This mass contained caseous material and hair. In one area the wall was thickened and very firm in consistency. Microscopical examination of this area showed an invasion of strands of poorly differentiated epithelium with a tendency to produce acini (figure 3). This patient died four months after operation from metastatic complications despite intensive radiation.

Case 4. A white woman, aged 50, entered Research Hospital complaining of constipation and lumbosacral

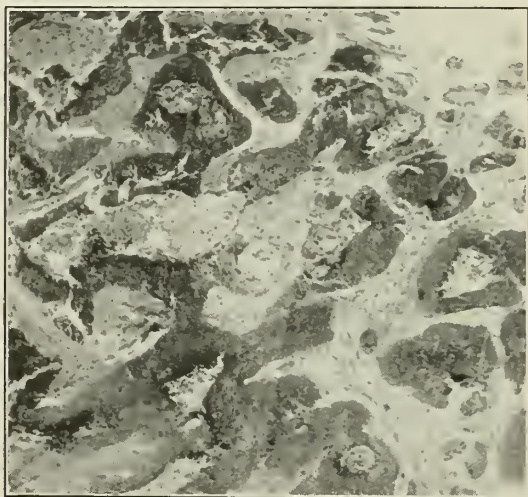


Fig. 4. A section from thickened portion of wall of dermoid cyst in case 4 showing carcinoma with "pearly body" formation.

type backache for a period of three months prior to admission. No weight loss. Physical examination revealed the presence of a mass the size of a grapefruit in the right adnexal region. On operation this mass was found to be connected to the right ovary and contained caseous material and a large ball of hair. In one region the wall was very thick and hard and grossly resembled carcinoma. Microscopic examination revealed a squamous cell carcinoma with "pearly body" formation (figure 4). This patient died from metastatic complications four months after operation.

SUMMARY AND CONCLUSIONS

Carcinoma of dermoid of the ovary, while rarely reported, probably is not a rare condition. Routine microscopic studies will no doubt raise the incidence found. The condition should be considered in all cases of women giving a history of low abdominal tumor of long standing which suddenly shows a marked increase in size and results in pain and loss of weight and strength.

Research Hospital.

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A NEW, SIMPLE AND SAFE METHOD OF ALLEVIATION OF PAIN IN LABOR

PRELIMINARY REPORT OF EXPERIENCE WITH
THE NEW ANALGESIC SIGMODAL

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AND

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In June, 1935, E. C. Hunt¹ published a paper, "Recent Trends in Obstetric Analgesia; National Questionnaire." In this article he compiled the answers to a questionnaire from seventy-eight of the leading obstetricians of this country. The resumé was summed up in a number of statements the most interesting of which were:

There is a distinct tendency away from a complete twilight sleep as well as a complete Gwaltney technic.

There is generally an increase in the use of barbiturates and a decrease in the use of morphine.

The ideal obstetric anesthetic has not yet been perfected.

Serious attempts are being made to find a drug that will combine the favorable features of the barbiturates and yet will be free from their tendency to cause excitement.

C. Gould and C. B. Hirst² summarized the answers of twenty-four clinics. They arrived at the conclusion that the most widely used analgesic agents are the barbiturates, among which sodium pentobarbital seems to be the most frequent choice. They are often combined with scopolamine. Attempts were made to control the excitement induced by the barbiturates by rectal ether.

As Hunt¹ points out, there is a great increase in scientific interest in obstetric analgesia. At a recent meeting of the American Medical Association this widely spread interest found its expression in a symposium on analgesia in obstetrics.

Four papers pertaining to this subject were read. The first one gave the results of a further 1000 consecutive confinements by the morphine-hyoscine seminarcois. In spite of the remarkably good results attained by this method in a hospital especially equipped for this procedure (thousands of deliveries by this method over a period of seventeen years), the discussion revealed that according to the summary of Hunt the majority of the obstetricians of this country do not recognize the conclusions given by its adherents in respect to approaching the ideal in obstetrical analgesia. Some of the objections to the method were the alleged danger to mother and baby. Moreover, the criticism was directed to the fact that the morphine-hyoscine seminarcois can be carried out successfully only in a modern hospital with a trained personnel. Thus the benefits of the method are more or less limited to a relatively small group of parturient women. One must not overlook that 60 per cent of all confinements are in the homes.

In the paper dealing with alleviation of pains in labor by nembital-hyoscine it was admitted that the method is far from ideal. The objections were the restlessness of the mothers and a number of narcotized babies.

The cause of the restlessness produced by this method is easily understood. W. F. Abott³ pointed out that pure barbiturates are midbrain sedatives and, according to J. E. Fritsch and R. Brown,⁴ the barbiturates are excitants in 25 per cent of all cases. This condition is aggravated by the use of another excitant, scopolamine. Sodium pentobarbital requires, as has been discovered in recent experimental work, a relatively long time for elimination from the body. Barbiturates have been found in the blood of the cord and in the urine of the newborn. This makes it clear that the possibilities of harmful effects on the babies cannot be excluded. L. Averet⁵ states that of 160 cases, eight babies required resuscitation; F. C. Irving, S. Berman and H. B. Nelson⁶ found that

the initial respirations of the babies were delayed. In spite of his excellent results in 205 cases, J. P. Boylan⁷ stressed his conviction that the drug should be administered only in carefully selected cases. C. E. Galloway and P. H. Smith,⁸ who published experiences in nembital-scopolamine analgesia in 500 cases, pointed out that the operative rate of deliveries was increased and that the method was not universally applicable. De Lee warned against the use of barbiturates with the benzene radical because of the danger of granulopenia. The authors, who emphasized the excellent results of pentobarbital and scopolamine (Irving gives 86 per cent and Galloway 93.6 per cent of satisfactory relief of pain and amnesia) stated that the drawback of the method was the increased restlessness.

The use of paraldehyde analgesia has not found a wide distribution in this country. The essayist of this paper reported previously on experiences with this drug. He combined paraldehyde with benzyl-alcohol, given rectally, and found no ill effect on mother or child. He admitted, however, that the method is far from ideal. Theoretically, one could be inclined to assume that the extreme slow elimination of the benzyl-alcohol from the body of the newborn (the characteristic odor can be detected for several days from the breath of the babies) could possibly cause some interference with the vital activities.

H. H. Rosenfield and R. B. Davidoff,⁹ and E. D. Colvin and R. A. Bartholomew¹⁰ combined paraldehyde rectally with nembital or sodium amytal by mouth. They obtained excellent results in respect to amnesia (95 per cent) but Rosenfield and Davidoff report that restlessness occurred in light degree in 58 per cent of the cases; in 7.33 per cent of the cases, however, the restlessness of the patients was very marked; they would thrash about noisily and required restraint. The rate of stillbirths was 2.29 per cent, and 11.14 per cent of the babies required resuscitation.

As a matter of interest, it might be mentioned that a woman physician, mother of several children, in a well prepared paper, gave her opinion that normal parturient women did not need alleviation of pains by medication. We do not believe that the majority of modern obstetricians, recognizing the requirements of the day, will agree with her statement.

We wish to bring before the medical profession a new barbiturate which, according to our experiences, fulfills the demands of Hunt, combines the favorable features of the barbiturates and minimizes the drawback; namely, the excitement. The name of the drug is sigmodal; its chemical formula is sodium-amyl-beta-bro-

mallyl-malonylurea. The rapid hypnotic effect of sigmodal is caused by the presence of an asymmetric C-atom; a further essential advantage of the drug is its rapid decomposition in the body, probably in the liver. As far as we know, this method has not been used in this country prior to our studies. The drug is administered rectally, similar to the methods described by Gwathmey for ether oil and Kane¹¹ for paraldehyde. Several other authors, among them W. T. Pride,¹² have given other barbiturates rectally, and the colonic application of avertin is well known.

Sigmodal has the following advantage; i. e., the drug comes in solution ready for immediate use; it needs no preparation other than the administration. In the course of our experience we developed a certain standard method for the use of sigmodal. We have tried several dosages, from 5 to 20 cc. of the drug, and finally concluded that 10 cc. gives the most satisfactory results in the alleviation of pain.

The time of administration depends on the establishment of true labor and on the parity of the patient. The first requirement is the occurrence of regular contractions and the real progress of labor. In primiparae the medication is started when the cervix is two and one half fingers dilated, and in multiparae after one finger dilatation. It is our routine to give a cleansing enema at the beginning of labor because it is essential for the quick absorption of the drug that the rectum be free from feces. As soon as the necessary dilatation of the cervix is attained the patient is placed on her left side and a thin rubber catheter is introduced rectally as high as possible. We try to insert the catheter above the fetal head. Between contractions 10 cc. of the solution are slowly instilled through the catheter and 4 cc. of saline are injected subsequently in order to assure the full dose of the drug. After the removal of the catheter, pressure is exerted on the anus for several minutes by means of a pad.

The effect of sigmodal becomes noticeable after ten to fifteen minutes and increases during the next two hours. The patient shows signs of drowsiness and begins to sleep between contractions after a short time. Having had some experience with other analgesias in labor we were impressed by the quiet sleep and the absence of restlessness in the majority of our cases. The analgesia lasts normally three to four hours but in several cases it extended to eight or ten hours. In the great majority of cases we found no interference with labor as to the frequency and force of contractions and we felt that labor was shortened. After delivery the patients enjoyed the benefit of a peaceful sleep for several

hours and this contributed to the rapid recovery of physical and mental functions.

The loss of blood during the third stage was normal or moderate in the majority of cases. The few exceptions will be discussed later.

Our careful observations of blood pressure, respiration and pulse indicated no change due to the drug. The maternal morbidity was not increased and no maternal mortality occurred. We did not observe any deleterious effect on mothers or babies.

According to the noninterference with labor forces the operative procedures during the deliveries were decreased; we consider this an important feature. With the exception of one intra-uterine death before the patient entered the hospital (premature death due to toxemia) we encountered no fetal deaths. The majority of the babies were born spontaneously, entering the world in good color and crying immediately. No resuscitation was necessary except in one case where a short cord was around the neck. The possible explanation for this good effect may be that the drug is so rapidly and completely destroyed in the liver of the mother that no narcotising effect on the baby may occur.

We encountered as complications one breech, two occiput-posterior positions and one face presentation. One deep laceration of the perineum extending to the cervix occurred.

Following our technic forty-five patients were delivered; thirty primiparae and fifteen multiparae. The average duration of labor in primiparae was thirteen hours and forty-three minutes and in multiparae eleven hours and four minutes. The explanation for this long average duration in multiparae is that in one case the drug was administered too early (before establishment of true labor); the contractions slowed down and the patient slept during most of the day. In two other cases patients entered the hospital early, having false contractions.

The average time of medication in primiparae was three hours and fifty-seven minutes, and in multiparae, three hours and forty-two minutes. These figures illustrate that the long average duration of labor in multiparae is not due to the drug.

The results in respect to analgesia and amnesia were as follows:

Primiparae: Analgesia good in 80 per cent; partial in 13.3 per cent; none in 6.7 per cent.

Amnesia complete in 80 per cent; partial in 13.3 per cent; none in 6.7 per cent.

Multiparae: Analgesia good in 73.3 per cent; partial in 20.0 per cent; none in 6.7 per cent.

Amnesia complete in 73.3 per cent; partial in 20.0 per cent; none in 6.7 per cent.

Reviewing our statistics, we repeat the statement made above that the average duration of

labor in primiparae was thirteen hours and forty-three minutes; and in multiparae eleven hours and four minutes. If we compare our results with those of Rosenfield and Davidoff, who used nembutal and paraldehyde and report the average duration of labor nine hours and forty-five minutes in primiparae and five

hours and forty minutes in multiparae, we freely admit that we were unable to attain their unusual time in labor. On the other hand, these authors state that the average duration of analgesia and amnesia in primiparae was eight hours and forty minutes and in multiparae five hours. Thus, there is a discrepancy between the dura-

Table 1. *Primiparae*

Number	Date	Age	Time of Administration	Amount	Time of Delivery	Duration of Medication	Total Time	Mother Pulse Blood Pressure Respiration General Condition	Baby	Complication	Loss of Blood	Analgesia	Amnesia
1	1/12/36	22	4:00 p. m.	10 cc.	7:10 p. m.	3' 10"	12' 45"	Unchanged, good	Spon. resp.	None	Normal	Part	Part
2	1/16/36	23	12:01 a. m.	10 cc.	1:15 a. m.	1' 14"	12' 20"	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
3	1/28/36	33	9:00 p. m.	10 cc.	11:16 p. m.	2' 16"	14' 25"	Unchanged, good	Spon. resp.	None	500 cc.	Good	Com.
4	2/ 2/36	19	12:55 a. m.	10 cc.	3:00 a. m.	2' 5"	7' 15"	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
5	2/10/36	34	5:00 p. m.	10 cc.	7:03 p. m.	2' 3"	8' 30"	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
6	2/19/36	23	4:00 a. m.	10 cc.	9:20 a. m.	5' 20"	10' 35"	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
7	3/ 1/36	23	1:10 p. m.	10 cc.	7:30 p. m.	6' 20"	17' 30"	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
8	3/11/36	22	9:55 a. m.	10 cc.	7:00 p. m.	9' 5"	16' 30"	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
9	3/12/36	17	10:55 a. m.	10 cc.	12:00 m.	1' 5"	12'	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
10	3/18/36	27	5:10 p. m.	10 cc.	8:13 p. m.	3' 3"	19' 13"	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
11	3/23/36	24	2:35 a. m.	10 cc.	6:04 a. m.	3' 29"	9'	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
12	4/ 8/36	28	4:05 p. m.	10 cc.	10:13 p. m.	6' 8"	20'	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
13	4/25/36	24	6:35 p. m.	10 cc.	9:54 p. m.	3' 19"	17' 4"	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
14	5/ 9/36	23	10:00 p. m.	10 cc.	12:16 a. m.	2' 16"	7' 35"	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
15	5/13/36	17	3:30 p. m.	5 cc.	4:35 p. m.	1' 5"	20' 25"	Unchanged, good	Spon. resp.	None	Normal	Part	Part
16	5/20/36	16	2:30 p. m.	10 cc.	4:00 p. m.	1' 30"	11' 53"	Unchanged, good	Spon. resp.	None	800 cc.	Part	None
17	5/23/36	16	2:10 p. m.	7 cc.	4:03 p. m.	1' 53"	11' 22"	Unchanged, good	Spon. resp.	None	Normal	None	None
18	5/24/36	20	4:00 a. m.	10 cc.	6:45 a. m.	2' 45"	8' 50"	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
19	5/27/36	24	11:20 a. m.	10 cc.	12:30 p. m.	1' 10"	10' 45"	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
20	5/28/36	18	2:30 a. m.	10 cc.	8:42 a. m.	6' 12"	16' 47"	Unchanged, good	Spon. resp.	Deep tear to cervix	450 cc.	Good	Com.
21	6/ 1/36	23	8:04 a. m.	10 plus 5 cc.	2:25 p. m.	6' 21"	11' 25"	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
22	6/ 3/36	23	7:15 p. m.	10 cc.	10:00 p. m.	2' 45"	15'	Unchanged, good	Spon. resp.	None	Normal	Poor	Part
23	6/ 5/36	19	7:15 p. m.	10 cc.	4:25 a. m.	9' 10"	26' 1"	Unchanged, good	Spon. resp.	None	Normal	Poor	Part
24	6/ 7/36	37	3:15 a. m.	10 cc.	7:00 a. m.	3' 45"	12'	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
25	6/13/36	27	5:45 p. m.	10 plus 4 cc.	12:35 a. m.	6' 50"	20' 5"	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
26	6/16/36	28	2:50 p. m.	10 cc.	10:15 p. m.	7' 25"	14' 15"	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
27	6/29/36	18	2:00 p. m.	7 cc.	7:06 p. m.	5' 6"	13' 6"	Unchanged, good	Spon. resp.	Face pres. version	400 cc.	Good	Com.
28	7/ 5/36	27	5:45 p. m.	5 plus 8 cc.	10:38 p. m.	4' 53"	10'	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
29	7/ 9/36	21	12:35 a. m.	10 cc.	2:26 a. m.	1' 51"	13' 34"	Unchanged, good	Spon. resp.	None	Normal	Good	Com.
30	7/ 9/36	34	7:55 a. m.	10 cc.	12:05 p. m.	4' 10"	11' 5"	Unchanged, good	Spon. resp.	None	500 cc.	Good	Com.

Table 2. *Multiparae*

Number	Date	Age	Time of Administration	Amount	Time of Delivery	Duration of Medication	Total Time	Mother Pulse Blood Pressure Respiration General Condition	Baby	Complication	Loss of Blood	Analgesia	Amnesia
1	2/ 9/36	32	5:25 p. m.	10 cc.	6:30 p. m.	1' 5"	14' 30"	III para. Un- changed. Good	Spon. resp.	None	Normal	Good	Com.
2	3/13/36	21	1:45 p. m.	10 cc.	3:15 a. m.	14' 30"	17' 15"	II para. Un- changed. Good	Spon. resp.	Breech pres.	Normal	Poor	Part
3	3/27/36	30	11:30 a. m.	10 cc.	1:50 p. m.	2' 20"	9' 50"	III para. Un- changed. Tox. in preg. Albumin- uria	Prem. lab. Baby dead several days before delivery	Toxemia	Normal	Good	Com.
4	4/ 4/36	31	2:27 a. m.	10 cc.	5:27 a. m.	3'	8'	III para. Un- changed. Good	Spon. resp.	None	Normal	Good	Com.
5	4/ 4/36	34	2:35 a. m.	10 plus 5 cc.	5:35 a. m.	3'	8' 35"	III para. Un- changed. Good	Spon. resp.	None	Normal	Part	In- com.
6	4/ 8/36	30	12:00 m.	10 cc.	5:18 p. m.	5' 18"	9' 18"	IV para. Un- changed. Good	Spon. resp.	None	Normal	Good	Com.
7	5/11/36	31	10:05 p. m.	5 plus 5 cc.	12:05 a. m.	2'	5' 10"	III para. Un- changed. Good	Spon. resp.	None	Normal	Part	Part
8	5/17/36	30	10:00 p. m.	10 cc.	12:16 a. m.	2' 16"	7' 25"	II para. Un- changed. Good	Spon. resp.	None	Normal	Good	Com.
9	5/18/36	35	12:30 p. m.	5 cc.	4:45 p. m.	4' 15"	13' 15"	IV para. Un- changed. Good	Spon. resp.	None	Normal	Good	Com.
10	5/24/36	26	3:30 p. m.	10 plus 5 cc.	7:05 p. m.	3' 35"	12' 5"	II para. Un- changed. Good	Spon. resp.	None	Normal	Good	Com.
11	5/27/36	35	5:20 p. m.	5 cc.	7:00 p. m.	1' 40"	17' 58"	IX para. Un- changed. Good	Spon. resp.	None	Normal	Good	Com.
12	6/11/36	20	9:15 a. m.	10 cc.	11:15 a. m.	2'	6' 10"	II para. Un- changed. Good	Spon. resp.	None	Normal	Good	Com.
13	6/11/36	27	12:01 p. m.	10 cc.	4:21 p. m.	4' 20"	17' 5"	II para. Un- changed. Good	Spon. resp.	None	Normal	Good	Com.
14	6/13/36	24	3:00 a. m.	10 cc.	4:10 a. m.	1' 10"	8' 20"	II para. Un- changed. Good	Spon. resp.	Del. in O. P. pos.	Normal	Part	None
15	7/ 8/36	24	3:04 p. m.	10 cc.	5:05 p. m.	2' 1"	13' 5"	II para. Un- changed. Good	Spon. resp.	None	800 cc.	Good	Com.

tion of the total labor and the duration of the analgesia, and it is impossible to conclude that in their cases true labor and a dilatation to two or three fingers was established within one hour and five minutes after the beginning of labor.

It is our belief that any effect of a drug upon labor can be accurately and truly measured only after the time it is acting on the parturient woman, from its administration to the termination of the third stage. In this respect our figures compare very favorably with those of the above mentioned authors; our average medication time was three hours and fifty-seven minutes in primiparae and three hours and forty-two minutes in multiparae.

As we pointed out, the figures demonstrate without doubt that sigmodal has no delaying effect upon labor contractions. In our series we

found four cases of restlessness; that is, 8.8 per cent; two were primiparae and two multiparae. In three cases this restlessness was of moderate degree; the patients were moaning and groaning during contractions. It is interesting to note that one of the women was the patient who received the drug too early, slept during the day and became excited after the effect of the drug was nearly over. Only one of the patients had to be restrained; this woman had the unusual weight of 270 pounds. The etiology of restlessness following barbiturate medication has been mentioned.

If we review the recent literature for observations of restlessness in other modern methods of alleviation of labor pain, we may cite Friedman,¹³ who finds restlessness the drawback in the use of sodium amytal; Daichman¹⁴

and associates complain of increased restlessness after the use of sodium amytal and scopolamine. N. S. Scarcello,¹⁵ who attempted to control restlessness after the use of sodium amytal with luminal reports that among his thirty-nine cases restlessness was present slightly in one case, moderate in five and marked in five.

Irving, Bernan and Nelson,⁶ using scopolamine and pentobarbital, consider the marked restlessness as a disadvantage of their method; F.W. Abott,³ who administered nembutal intravenously, stresses the restlessness of his patients. In 140 cases reported by F. C. McGuinness,¹⁶ who used morphine and nembutal, a marked restlessness was present in 12 per cent. The good results of Rosenfield and Davidoff were offset by restlessness; 58 per cent of light degree and 7.33 per cent of such marked degree that the patients required restraining.

The favorable figures we obtained with respect to restlessness do not need further comment. We mentioned above that there was a low percentage of operative deliveries under sigmodal analgesia. C. O. Galloway and P. A. Smith state that after the use of nembutal and scopolamine the operative rate of deliveries was increased; the same statement is made by Daichman, Kornfeld and Schir with sodium amytal and scopolamine. The loss of blood during the third stage of labor was moderate or very little in thirty-nine of our cases. If we consider 500 cc. as a normal loss of blood, forty-three of our patients had normal third stage of labor. In one case there was a deep laceration of the perineum extending to the cervix but the bleeding ceased after the repair of the tear. The other patient was delivered by podalic version because of face presentation.

In our series two cases of postpartum hemorrhage occurred in which the bleeding amounted to 800 cc. One case was a primipara 16 years old, the other a multipara 24 years old. Both patients went through a short labor with extremely strong contractions. One had a deep laceration of the perineum which oozed freely. They received several minims of infundin intravenously and the bleeding stopped immediately. Both patients had an uneventful postpartum course.

As to the babies no mortality occurred in the hospital or in subsequent weeks. One premature stillbirth occurred. All other babies except one were born crying spontaneously. The only case of resuscitation was due to a short cord around the neck causing an asphyxia pallida. The baby recovered. These figures compare favorably with those of other writers. Irving and associates admit that after pentobarbital and scopolamine the initial fetal respirations

are delayed. Among the series of Rosenfield with nembutal and paraldehyde, 11.14 per cent of the babies required resuscitation. Daichman and associates state that sodium amytal and scopolamine frequently cause asphyxiated babies. Averett reports the necessity of resuscitation in 5 per cent of his cases. Our fetal mortality was practically none. Krebs,¹⁷ in his publication in 1929, gives a fetal mortality of 3.3 per cent under the morphine-hyoscine method. Rosenfield with nembutal-paraldehyde analgesia had a stillbirth rate of 2.29 per cent.

In conclusion, we feel that sigmodal can be administered without danger to mother and child.

It does not interfere with labor or the effects of contractions.

It shortens the duration of labor in most cases.

Complete amnesia occurs in nearly 80 per cent of the cases.

Sigmodal is a safe drug in the hospital and in the hands of the general practitioner in the home.

Finally, it approaches more nearly the ideal analgesia in obstetrics.

We are deeply indebted to Dr. Riordan, Chief of the obstetrical department of De Paul Hospital, and Dr. Ayars in charge of an obstetrical division of the City Hospital, for allowing us to use our method in a number of their cases. We wish to extend our appreciation to residents in the various hospitals for their untiring and intelligent cooperation.

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SIMPLE AND SAFE HOME OBSTETRICS

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Various statistical studies available emphasize that the maternal mortality in our country is greater than in many other countries; that the proportion of cases attended by midwives without aid of physicians varied from practically none to as high as 50 per cent in some states; that 25,000 women die each year in childbirth in the United States and that over 200,000 infants die at birth or shortly thereafter, yet few suggestions toward improving this lamentable condition have been made.

There has been a gradual development of routine obstetric care in some hospitals which has proved reasonably efficient, but which has become so complicated by the addition of new procedures that now it can be carried out only in institutions having every modern facility. Since the greatest percentage of all deliveries is by necessity conducted outside of hospitals and often in homes under more or less poor conditions, a serious effort might be directed at the evaluation of these numerous technics with the idea of developing one which retains all the essentials and can be effectively applied in either the home or hospital, especially in the former. Such a simple and safe technic is herewith submitted.

PRENATAL CARE

Pregnancy and childbirth is a physiological process. It is a test of function. It is the supreme test of the physiology of a woman, and at times physiology may fail and pathology result. The strain of pregnancy often brings dire results. Efficient prenatal care, therefore, is necessary in order that every woman may be brought to the highest degree of efficiency. Every pregnant woman should put herself under the care of the most intelligent physician that is accessible to her.

The observation of the physician should be-

gin early in pregnancy in order that any physical defects may be discovered and if possible corrected promptly. As the general physical state of the pregnant woman has a direct bearing upon her ability to go safely through pregnancy and labor the physician should ascertain her condition as accurately as possible, eliciting first a full history of previous illnesses, operations and labors, followed by a careful examination, both general and obstetrical.

A careful pelvic examination and taking pelvic measurements are most important parts of the obstetrical examination. The absolute necessity of accurate knowledge of the dimensions of the pelvis of the pregnant woman seems so obvious that discussion would appear superfluous. Unfortunately, even today, many women are permitted to go into labor without this fundamental part of the prenatal care having been attended to.

She should be carefully watched for every defective functioning of the kidneys, the liver or other vital organs and, with the first symptom of defective action, proper remedial measures established. There should be little need for marked deviation from the usual standard of reasonable living.

A sensible diet includes a basic intake of milk, fruits and vegetables. Articles of food which produce discomfort should be eliminated. It is not necessary to proscribe meats as recent investigations have shown that an adequate protein intake may protect the patient against the development of the toxemia of late pregnancy. The fluid intake should be adequate; and it might be wise to restrict somewhat the ingestion of salt which is said to predispose to the production of edema. Calcium in the form of dicalcium phosphate may be prescribed during the last trimester and during the winter months an additional supply of vitamin D in the form of cod liver oil or artificial sunshine is advisable. These accessory food factors need not create any fear that untoward ossification of the fetal cranium be produced and thus lead to dystocia.

"For every child a tooth" was probably, in former times, more than mere fiction. It is known that decay of the teeth progresses more rapidly during pregnancy than at other times and this is particularly true if cavities exist. Careful inspection of the teeth by a competent dentist is, therefore, essential. In addition to routine dental work it is important that infections be detected. Roentgen ray films of the tooth roots should be taken if necessary. Extraction of teeth, about the roots of which abscesses are found, should be done. Local anesthesia is preferable for extraction. The danger of abortions following extractions is exceedingly small. Securing a completely healthy

mouth condition definitely increases the probability of a normal pregnancy and puerperium.

Since women's apparel is very sensible little consideration need be given to clothing. It is well to advise against circular garters and tight brassieres. Low heeled shoes with broad toes are best. Corsets are recommended only when a pendulous abdomen or relaxed sacroiliac joints produce discomfort.

Strenuous forms of exercise should be avoided. Reasonable activity is good for the mental and physical health of the normal pregnant woman and tends to prevent too great a weight gain.

LABOR

With a little thought, tact and skill a satisfactory delivery room can be improvised for a home confinement, even when the surroundings are poor and the available utensils, linen, etc., meager. The principles of the prevention of infection, i. e., first, the disinfection of the field of operation and, second, the absolute asepsis of everything that comes in contact with it; that is, hands, instruments, sponges, etc., are really simple. A great deal of suffering could be avoided if these two principles were appreciated and respected.

The sunniest and best room in the house should be chosen for the confinement. It should not have been recently occupied by an infectious case. About two weeks before the expected date the room could be made ready.

The requirements of asepsis do not demand that the lying-in room be inhospitably bare. Unnecessary furniture and dust catching bric-a-brac, etc., however, should be removed.

A washable floor is desirable. A single bed with a firm mattress is preferable. It should be about 30 inches high. The ordinary bed with its soft and sagging mattress is best replaced by a hospital bed with a firm mattress. Should this not be available the ordinary bed can be raised on stout wooden blocks and several table boards inserted between the springs and mattress to obtain firmness. A chair, a kitchen table, a sewing table, the dresser and a rocker complete the furniture. Provisions should be made to have good light, a bundle of newspapers and plenty of hot and cold sterile water.

Some patients may term this unnecessary preparation but a little tact and explanation will clear the way. Advancement must be smoothed on the people, not forced.

Childbirth is essentially a surgical problem and must be approached from that angle. The operative field lies in an area which is subject to gross contamination and which in part comprises tissues that cannot be safely treated with the stronger antiseptics. The chief problem, therefore, is to do as little harm as possible.

If it be admitted that any invasion of the birth canal carries a risk, it becomes evident that the simpler the procedure the better. A simple and safe method is herewith presented.

The patient is properly dressed for delivery. The lower bowel is emptied by an enema early in the first stage. A snug abdominal binder will often aid in making the uterine contractions more effective. The physician's hands should be well washed, his finger nails cleaned and the hands covered with sterile gloves during the actual delivery. His street clothes should be covered by a sterile gown and he should wear a mask over his nose and mouth. The latter is one of the essentials of a good conscientious technic. Instruments are boiled and set out ready and handy. Sterile supplies should be ready at hand and solution pans filled and in readiness.

The vulva is shaved to aid in the easier application of cleanliness after delivery. No further preparation is necessary. Sterile sponges and 1 per cent cresol solution are employed externally during delivery. The chief risk of infection comes from without and it is reasonable to reduce these chances to a minimum by eliminating every possibility of such contamination. For this reason the instillation of antiseptics into the vagina during delivery is not favored.

The course of labor is followed by abdominal and vaginal examinations. Vaginal examinations under strict sterile precautions are made only as necessary.

As the contractions become increasingly severe, more frequent and prolonged, the endurance of the patient is often taxed. Modern obstetrics provides many analgesics for use in labor and each has its reputed relative merits, but since the most uneventful labor may at any time develop a pathological aspect demanding operative interference, the use of drugs whose effect is long continued and not quickly removable becomes a debatable procedure.

It is desirable that the patient be encouraged to use her voluntary musculature to supplement the action of the uterine contractions during the second stage of labor. There is no single measure which offers the patient more actual relief from the recurring pains than the privilege of coordinating her bearing down efforts with each contraction.

The problem of anesthesia for home delivery is quite important. Chloroform and ether still compete for honors. The former is still extensively used and preferred for the short anesthetic in spontaneous labor. The too free use of anesthetics is a major cause of an increase in operative interference in childbirth.

Spontaneous labor should be encouraged, interference being employed only for definite and

strict indications. Operative delivery increases the risk of maternal morbidity and mortality.

Pituitrin really has no place in the conduct of labor until after the child has been born. A precipitate delivery is worse for the mother and child than a slow normal birth.

PUERPERIUM

After expression of the placenta a hypodermic of aseptic ergot is administered. Anesthesia is again induced provided there is repair work to be done. If not, the patient is made comfortable in bed and kept under constant supervision for at least one hour to guard against excessive bleeding from uterine atony. Thereafter a dram of fluid extract of ergot is given every three hours for eight doses.

Constant massage is not necessary in a normal third stage of labor, but the size, shape and consistency of the uterus should be repeatedly determined by gentle abdominal palpation. If a tendency to softening is noted the uterus may be stimulated to contract by gentle massage. This, together with the observation of the amount of visible bleeding, the patient's condition and the pulse rate is the procedure to be recommended.

If separation of the placenta is long delayed, gentle friction of the posterior wall of the uterus may be advocated to bring on a firm contraction which is necessary before Crede's method can be attempted. Massage may be valuable in the presence of postpartum hemorrhage if it becomes apparent that the uterus must be emptied at once. Inspection of the placenta for missing cotyledons or portions of membranes must not be forgotten.

The delivery thus completed the patient will require rest and during the next twenty-four hours every effort should be made to see that she is not disturbed. Thereafter inactivity is not essential and she is encouraged to change her position in bed frequently. It is better for her to remain in bed about ten days. After the third day systematic exercises, directed at the abdominal muscles and including deep breathing, raising the legs and elevating the head and shoulders are begun.

Cleanliness is the greatest factor in the prevention of infection of the breast. Before and after each nursing the nipples should be gently cleansed with a solution of boric acid. Between nursings the nipples are covered by small squares of dry sterile gauze held in place by a breast binder.

Support of the breasts is often necessary and a brassiere of the uplift type is best. Care should be taken to use no support which will cause the functioning breast to be pressed against the chest wall.

Mother's milk is the best food for the baby. Fewer little graves would be seen in the cemeteries if all mothers would or could nurse their babies. It is rare that a mother cannot nurse her baby if she is given the proper care before and after the arrival of the child. The mother who would have good milk for her baby must avoid unnecessary worry, excitement, fatigue or exertion. It is not good for her to go to many public functions where she becomes weary or excited.

Unless suffering from some disease which demands dietary restrictions, a full diet may be given from the time of delivery. A diet relatively high in protein and vitamin B and especially leafy vegetables and milk is encouraged.

It is best not to give a drastic cathartic, especially in the presence of a perineal repair; violent fecal evacuations will disturb the wound area and subject it to the danger of infection. It is far better to wait two or three days and then empty the bowels with a simple enema or cathartic. Subsequent regular bowel movements may be maintained by the daily administration of moderate doses of plain mineral oil and perhaps an enema, if needed.

The perineum, especially when repair work has been carried out, is a healing area which requires rest. Best results are obtained if the area is kept clean by sterile water douches followed by the dropper application of 3 per cent mercurochrome once or twice a day.

At the end of eight weeks the patient should return to the office for a final examination to see if the uterus has come down to its proper size and position and if any injury that may have been sustained at childbirth has properly healed. A year later it is advisable to have a "follow-up" examination on both mother and child.

If this plan is followed many of the "after-effects" of childbirth which interfere with the future comfort of the patient can be averted. On the other hand, if these after-effects are allowed to continue uncorrected for months they will not only cause much unnecessary discomfort, but it may then become necessary to resort to a surgical operation to correct a condition which might have been prevented or corrected earlier by simple procedures.

It is well known that women through times past have given birth without skilled assistance and have recovered in the vast majority of cases with little or no serious injury resulting. Nevertheless, it is the aim of modern obstetrics to conduct deliveries so that women shall be spared injury and infection and be restored, in structure and function, to as nearly normal as is possible.

No attempt has been made to cover all phases

of obstetric care, but attention has been called to those procedures which have been submitted to careful clinical application and have proved effective and can thus be safely recommended and utilized in both hospital and home delivery practice, especially country homes.

CARBON TETRACHLORIDE POISONING

REPORT OF THREE CASES

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Carbon tetrachloride has been employed in a number of different fields in recent years, particularly because of its use as a fat solvent coupled with its noninflammability. It is used in industry as a solvent for gums, resins and fats; also as a dry cleanser and, under the name of Pyrene, as a fire extinguisher. In medicine it is used as a vermifuge in the treatment of ankylostomiasis.

Carbon tetrachloride (CCl_4) is a heavy colorless fluid with an odor resembling that of chloroform. It is practically insoluble in water and glycerine but is miscible with alcohol, chloroform and oils. It has a boiling point between 76.1 and 76.3 C. and its fumes are heavy being 5.3 times as heavy as atmospheric air.

Cases of poisoning due to this substance have been reported from time to time, several of which were fatal. The toxic property of carbon tetrachloride is manifested in several ways varying from a mild, transient attack of vertigo, headache and nausea to such severe symptoms as fever, pain, emesis or even convulsions and death.

Hall,¹ in 1921, announced the use of carbon tetrachloride as a vermifuge in ankylostomiasis and considered it comparatively safe. However, the extensive experimental work of Lamson, et al.,² on dogs has shown that carbon tetrachloride is definitely toxic in moderately large doses and, under certain conditions even in small doses, produces central necrosis of the liver and the resulting signs of liver damage. Death was found to be due to respiratory rather than cardiac failure. Phelps and Hu,³ in reporting two fatal cases in man, found central necrosis of the liver and necrosis of the suprarenal glands. No appreciable kidney damage was found.

Carbon tetrachloride may be absorbed from the intestinal or the respiratory tract and is excreted almost entirely by the lungs and none by the kidneys. The following cases concern only its absorption by inhalation.

REPORT OF CASES

Case 1. P. V., white male, aged 23, came to the student health clinic of the University of Missouri on January 6, 1936, complaining of vague epigastric pain, anorexia and nausea, but no emesis. He had had no similar previous attacks. However, he had a chronic nonproductive cough during the previous four months. Roentgen ray examination of the chest two months prior had revealed only an old healed pulmonary tuberculosis. On physical examination his heart and lungs were essentially normal and there was no rigidity, tenderness or abnormal masses on abdominal examination. W. B. C. was 5180 with 68 per cent neutrophils, 3 per cent eosinophils, 3 per cent large mononuclear cells and 26 per cent lymphocytes. He was placed on a milk diet for twenty-four hours with no relief from symptoms and reported emesis once during the night. He was admitted to Noyes Hospital on January 7. W. B. C. at this time was 5540 with 70 per cent neutrophils, 1 per cent large mononuclear cells and 29 per cent lymphocytes. R. B. C. was 3,920,000 and Hb. was 90 per cent. Urine and stool were normal. Another roentgen ray examination of the chest revealed no change in the previous findings and roentgen ray of the genito-urinary tract was also indeterminate. His temperature varied from 98 to 99.4. His symptoms improved with bed rest and he was discharged from the hospital in two days, after which time he steadily improved and his cough disappeared in about three weeks. During this time he was not allowed to work.

Case 2. N. H., white male, aged 20, came to the student health clinic on January 11, 1936, complaining of malaise and weakness for the last ten days. He first noticed an increased appetite which turned to anorexia when food was eaten. This was followed by vague epigastric pain with considerable gas and belching. He had had considerable anorexia for the last few days, no nausea or emesis. Bowels were normal and regular. Heart and lungs essentially normal; no rigidity, tenderness or abnormal masses in abdomen. Urine examination was normal. W. B. C. was 6100 with 49 per cent neutrophils and 51 per cent lymphocytes. R. B. C. was 4,060,000 and Hb. 85 per cent. After staying away from work for a week his symptoms were completely alleviated.

Case 3. J. A., white male, aged 20, came to the student health clinic on January 11, 1936, with patient N. H. (Case 2) with the same history and physical findings. Urine showed a trace of albumin and a few pus cells. W. B. C. 8200 with 55 per cent neutrophils, 2 per cent eosinophils and 43 per cent lymphocytes. R. B. C. was 4,860,000 and Hb. 100 per cent. His symptoms were completely alleviated after abstaining from his usual job for one week.

DISCUSSION

These three students of the University of Missouri worked several hours a day on the same offset printing press in a basement room of one of the university buildings. Carbon tetrachloride was freely used as a cleaning agent on the rubber ink pads and a 30 gallon tank of this fluid was kept in the same room. There are four windows in the room but their sills are 6 feet from the floor and the only door was 21 inches above the floor. Since carbon tetrachloride is 5.3 times as heavy as atmospheric air it was concluded that its fumes were

From the University Health Service, University of Missouri.

accumulating in the room in strong enough concentration to produce the symptoms in the reported cases. These boys had been working under the same conditions since September, 1935; but it was not until about January 1, 1936, that any untoward symptoms were noted. However, it was just about this time that the first severe cold weather of the winter had begun and since the windows could not be left open for long the ventilation was less adequate than previously.

These three cases were first suspected of being mild intoxications from the inhaled fumes of carbon tetrachloride on January 11. A suction ventilating system was installed in the room soon after, carrying the fumes from the floor to the outside through a window. Since then all the boys have been working again with no untoward symptoms resulting.

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William U. Gardner, George M. Smith, Leonell C. Strong and Edgar Allen, New Haven, Conn. (*Journal A. M. A.*, Aug. 29, 1936), state that the rôle of chemical stimulation in the development of mammary tumors postulated clearly by Loeb in 1919 has been demonstrated experimentally by several investigators. The present report summarizes additional experiments on the effect of several different chemical stimulants (estrogenic hormones) on the development of mammary carcinomas and of subcutaneous sarcomas in three different strains of mice. One or two estrogenic chemicals were injected for periods exceeding 125 days into 126 mice of three strains as follows: eighty-six mice of the A strain, twenty-seven mice of the C₅H strain, and thirteen mice of the CBA strain. Twenty-eight mice developed one or more mammary carcinomas and seven more developed spindle-cell sarcomas as local reactions in relation to retained oil cysts at the sites of injection. Mammary cancers developed in male mice receiving theelin, equilin benzoate, keto-estrin and hydroxy-estrin benzoate. Mammary tumors occurred in two of three females of the relatively tumor-resistant CBA strain.

FURTHER ASPECTS OF DIATHERMY
IN OPHTHALMOLOGY

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Many therapeutic procedures introduced with praise and enthusiasm are abandoned before their use becomes widespread. Thus, it was no surprise to observe that when diathermy was introduced into ophthalmology it was not generally accepted. However, numerous favorable reports have continued to appear in the literature. At first most of the comment by foreign authors concerned medical diathermy. These have continued but at present surgical diathermy is more generally accepted by American investigators. I have reviewed most of the literature concerning surgical diathermy and shall endeavor to present its present status.

Monbrum and Casteran¹ were among the first to report on the successful treatment of certain conditions of the lids and conjunctiva by electrocoagulation. They used this procedure for destruction of tumors or other chronic proliferation of the lids and conjunctiva, the repair of enucleation cavities invaded by frena and synechia, on exenteration of the orbit for invading tumors, epitheliomas, chalazion, warts, moles, cysts, xanthelasma, pterygium, trichiasis, symblepharon, palpebroconjunctival tubercle, trachoma and corneal pannus.

Zubak² reported a series of cases of pterygia treated by a two step method of electrocoagulation. In the first step the needle is inserted just enough to coagulate the inferior margin, the superior margin and, at times, the middle portion. A week later the head and neck will have sloughed off after which the remaining remnants are coagulated.

Kalloch³ of Armenia successfully treated trachoma by dessication but confined his intensive treatment to the triangular area from the inner corner of the upper lid outward on the retrotarsal conjunctiva, paying particular attention to small inflamed areas in the semilunar fold. The operation is followed the same day by grattage and massage of the rest of the lids.

Cottle commends the electrosurgical treatment of pannus in which he does a simple peritomy with the coagulation current. The conjunctiva is picked up with an electrode about two millimeters from the limbus and coagulated about one fourth inch at a time. The entire limbal periphery may be treated at one sitting though he believes the treatment of five sixths of the circumference is usually adequate. He prefers a general anesthetic for the operation but it may be done under suitable local anes-

¹Read before the St. Louis Ophthalmic Society, January 24, 1936.

thesia. This type of operation for pannus has been done by Cradle, Knapp, Parker, Meyer and Hollender with satisfactory results in most instances.

Cottle⁴ uses electrosurgery in the treatment of prolapse of the iris following injuries and operations and uses mild coagulation for obstinate blepharitis.

According to Cottle,⁴ Safar treats blepharospasm by first locating a main branch of the facial nerve, introducing a needle electrode into the cheek and stimulating it with the galvanic current. When the nerve is thus localized the needle is left in place and attached to the coagulating current. This partially destroys the nerve and relieves the spasm.

Meyer⁵ recommends electrosurgery in small vitreous prolapses following separation of the wound edges after cataract extraction. He also uses electrocoagulation in the treatment of absolute glaucoma in elderly patients, performing a posterior sclerotomy with the diathermic needle as used in the Weve operation for retinal detachment; and he quotes J. Strebel who believes that this method decreases the intraocular pressure and is better than any other procedure. The amount of hypotony not only depends upon the size of the needle used but upon the duration and intensity of the spark.

Pockley and Coppleson⁶ have been successful in the diathermy treatment of a rodent ulcer which extended through the whole thickness of the lower lid.

Benedict⁷ reports a case of epithelioma of the limbus treated by fulguration in which he commends the rapidity of the healing process, the safety and the absence of pain and deep congestive reaction following fulguration.

In the approach to surgical diathermy in retinal detachment Gonin⁸ advocated the use of thermocauterization in 1916, a scleral puncture being made and followed by the use of the Paquelin cautery. It is also known that a similar method of treatment was used by Addario⁹ in 1889.

For the beginning of this most recent achievement in ophthalmology we credit the work of Weve, Larsson, Safar and Walker. Weve⁹ in 1930 reported in a Holland publication the use of diathermy to seal the retinal tear. In 1932 he reported this operation to the Ophthalmic Society of Vienna. He designed with his episcleral method a circular puncture of the sclera in the region of the tear, using a fine needle, thereby obtaining adhesions between the retina and the choroid. Weve introduced his punctures as far as the retina at the marginal tear of the retina itself under control with the ophthalmoscope.

A few months later in the same year Lars-

son¹⁰ presented his method of diathermy treatment. His operation consisted of lifting the conjunctiva to give all exposure of the sclera over the detached retinal area, tenotomizing one or more of the ocular muscles if necessary, after which surgical diathermy with a ball electrode was applied over the sclera. One or two trephine openings are made with an Elliot trephine to allow an outlet for the subretinal fluid and prevent a rise in intra-ocular pressure from postoperative reaction. His method paid no attention to tears in the retina.

Safar¹¹ thought it appeared more simple to introduce the electrode through the sclera so as to coagulate the choroid and thereby obtain the desired adhesions between the retina and the choroid, thus drawing together the tear. Safar's method attempts to leave undisturbed as much as possible the retina and vitreous and to introduce the short needles only into the subretinal space whereby there could be produced electropuncture of the sclera and choroid with simultaneous coagulation of the choroid. After loss of subretinal fluid through the puncture openings the retina adheres to the choroid, thereby preventing communication between the vitreous or the subretinal space. He used the so-called brush electrode to reach inaccessible and nail electrodes to effect a controlled partial penetration of the sclera. When there are peripheral tears or multiple holes, or when an invisible tear is suspected in the periphery, he makes a delimitation of the zone of the tear over the healthy although detached retina by making an arch of puncture from the ora serrata to the ora serrata behind the territory of the tear or holes. To avoid secondary formation of holes in the retina and to spare the retina as much as possible, this arch of punctures is made with nail-like or comb-like electrodes which penetrate the bulbar wall. The electrodes are held in place with forceps which are connected with the electric current. To prevent the subretinal fluid from escaping prematurely, these electrodes are left in the sclera until the arch of demarcation is completed. He then punctures the area around the arch as far as the ora serrata with a short single needle on a stalk to bring about flat adhesion of the retina in the region of the tear by coagulation. With the use of these short needles any secondary holes which may have been produced in the retina are closed with the coagulation in the choroid. For tears situated posteriorly, he uses electrodes on curved stalks. Using short needles one or more punctures in the wall of the eyeball are made in an area corresponding to that of the tear, and adhesive inflammation is produced followed by adhesion of the retina to the choroid in the territory of the tear.

In the first year this method was used Safar gives the number of successful cases as 57.5 per cent in forty unselected cases. Ninety per cent showed permanent improvement in uncomplicated cases of detachment of no more than five months' duration which followed contusion or occurred in myopia.

For electrocoagulation, Safar uses from 30 to 50 milliamperes with an electrode having one needle, from 80 to 100 milliamperes with an electrode having three needles, and from 150 to 200 milliamperes with an electrode having from five to eight needles.

Jess¹² reported in 1932 on such micropunctures as discussed by Weve. He found by animal experimentation, and upon microscopical examinations, that the use of micropunctures with the high frequency current caused firm adhesions between the retina and the choroid.

Vogt¹³ has reported success with his method of simple cathode electrolysis through the sclera. The anode lies on the eyeball. He uses multiple momentary punctures with the electrolysis needle in the margin of the retinal hole and in the hole itself. The application is instantaneous, and a current of from 0.5 to 1 milliampere is necessary. He states that the resulting scars are delicate, no cicatricial bands are produced in the retina; and no secondary holes are produced from too intense heat. No vitreous is lost and a number of holes or tears may be treated at the same sitting.

Walker's¹⁴ method or modification is probably the most universal method used among the American ophthalmologists; therefore its technique will be described more in detail.

Walker uses a local anesthetic successfully and advises the administration of sodium amytal and morphine with scopolamine hypodermically previous to the operation. A Van Lint infiltration is done, using 2 cc. of 2 per cent solution novocain with adrenalin, reaching one inch toward the ear and orbitally as far as the supra orbital and infraorbital nerve region; and then about 2 cc. of the same solution is used for the ciliary retrobulbar injection. In addition to the instillation in the eye of a 4 per cent cocain and adrenalin 1/1000 solution, the three recti muscles are given peribulbar injections with the 2 per cent novocain and adrenalin solution.

The conjunctiva and capsule should be opened over the entire area to be treated; one or two recti muscles, as necessary, should be severed to give adequate exposure; all bleeding should be arrested and an external canthotomy should be done if indicated. The tears should be located if possible and a barrage of needles should be laid down about 2 mm. apart so as to include the entire tear. If no tear can be located the coagulation punctures should be placed sev-

eral millimeters back of the ora serrata from the beginning of the detachment and carried well down to its lower limits. The number of needles will vary from twelve to twenty-four or more. The aim should be to limit the field of operation and the number of coagulation punctures to the minimum that will yield results. Each needle should remain in place until the entire area is properly covered. The threads of silk attached to the several needles are now grasped as one mass and the needles are slowly withdrawn one by one by a gentle rocking motion and a free outpouring of subretinal fluid follows. The muscles, if detached, are reunited and the conjunctiva and capsule are closed with interrupted sutures.

The after-treatment consists of two weeks complete rest with both eyes occluded, and after this period pinhole occlusion goggles are worn for another week or more.

To reduce the possibility of postoperative reversal flow through the micropuncture holes, dehydration of the patient and a pressure bandage much above the ocular pressure should be avoided.

Walker¹⁵ in 1931 devised long slit eyed beading needles made from steel of various shapes. In 1932 he attempted to make very short tacks which were magnetized with sharp point negative; this was followed by beading needles which were held by a cold pair of pliers. Later he used 15 to 25 per cent iridium-platinum wire, the microtips in various wire diameters, 0.3 mm. being the most commonly used. He mounts these micropins by individually knotted thread drawn into gauze. When they are transferred to the sclera the separate threads are cut away and the micropins are anchored or strung on a single oiled thread.

Schoenberg¹⁶ in 1935 describes a two hook stainless steel or platinum-iridium electrode 1.25 mm. in length and recommends its use for tears situated far back; he mentions its double use, that of an electrode as well as a retractor. Walker¹⁷ a few months later describes his 15 per cent iridium-platinum short stop double and single prong electrodes. His short stop double electrode differs from Schoenberg's electrode in that the prongs are 2 mm. apart but can be bent to 2.5 mm. Each prong has a short stop filed in so that it cannot penetrate far enough under 10 ma. of current to permit alteration of the current to a minimum. The length of the penetrating points from the stop is only 0.5 mm. for the thin sclera and 0.7 mm. for thick sclera, the object of the length being to cauterize the choroid without having leakage of fluid. Walker does not recommend these short stop prongs for the primary barrage line on account of occasional leakage, nor does he recommend

that they be used as retractors on account of leakage as well as danger of the pull breaking the coagulum, causing hemorrhage. He thinks the short stop bident single prong electrode probably has less tendency to soften the eye by leakage and that the single prong electrode is preferable in spaces too small for the bident electrode as well as to use as a marker for the barrage line.

Shoenberg¹⁸ says, "The choroid may be so atrophic that it does not react to electrocoagulation or to any other measure directed toward producing an inflammatory reaction in the tissues." In other cases the retina is degenerated and folded so that it cannot be flattened out and returned to its normal position in relation to the choroid. In some patients the failure may be attributed to the vitreous which, being adherent to some portion of the retina, prevents it from falling back to normal position. Finally, the remaining subretinal fluid may not be reabsorbable and may prevent the reapplication of the retina to the underlying choroid.

Thorpe¹⁹ states, "A dry globe and sufficient current for penetration are essential. A wet globe and insufficient current cause shrinkage and scleral shortening." He uses a 12 mm. scleral curve and a 7 mm. corneal curve contact glass in the study of the retinal periphery, especially in aphakia.

Peter²⁰ believes diathermy offers a new and unparalleled future for the cause of retinal detachment if the operation is done with precision and the case is carefully studied before the operation is undertaken.

Gradle²¹ gives his contraindications to operation as follows: The detachment of pregnancy should never be surgical. The large funnel shaped detachments of myopia offer a hopeless outlook. The flat detachments that have existed over a longer period of time usually are beyond hope. The detachment occurring in aphakic eyes offers a bad prognosis, although operation is not contraindicated. Detachment in association with tuberculosis of the retina and choroid do not yield satisfactorily to operation. He believes one should operate on retinal detachment that offers any possible chance of success.

REPORT OF CASES OF RETINAL DETACHMENT

Walker in cases selected, excluding aphakia and separation of over eighteen months' duration, obtained eighteen reattachments or 81 per cent in a series of twenty-one cases.

Shoenberg reports a series of twenty-three cases with fourteen successful results and nine failures.

Dunnington and Macnie,²² after coagulation, report cure in 38.8 per cent, improved in 16.6

per cent, and failure in 44.5 per cent. They think this low percentage is probably due to too conservative treatment.

Knapp²³ reports forty cases in which twenty showed reattachment, four improved, and seven no influence.

From my experience²⁴ with medical and surgical diathermy, I have found it valuable in the treatment of certain conditions of the lids, in surrounding tissues and in some diseases of the globe. Medical diathermy may be said to be indicated whenever heat by conduction or radiation is advisable, since heat dilates the blood vessels, increases the hyperemia and accelerates metabolism. It may be conceded that medical diathermy in treatment of eye diseases is contraindicated following a recent hemorrhage, during an acute inflammation, or when there is confined pus. I have accepted medical diathermy as a valuable adjunct in the treatment of chronic conjunctivitis, atonic keratitis, iritis, and favorable in a single case of incipient cataract.

In our investigation surgical diathermy has shown a valuable field in the treatment of warts, moles, xanthomata, chalazion, growths involving or adjacent to the inner or outer canthus, keratitis lagophthalmus, entropion, chronic trachoma and pannus, and retinal detachment.

Machine: The resistance of the tissues is not always the same; neither are the adjoining areas of the outer surface of the eyeball equally resistant to the current. Various types of machines are being used, and one must learn by experience the workings of the individual machine. It is safer to begin by using a weaker current and to increase it gradually until the electrode is driven in with ease. A machine that can furnish a mixed current, as both the coagulating and cutting current, is advisable.

Attention should be directed to the growing place in which diathermy is coming to occupy in the treatment of eye diseases and the study and investigation which is being made by conservative, scientific men. Further experience with electrosurgery is necessary before we can draw definite conclusions. The results thus far obtained merit continued experimentation and it seems destined to play a significant part in ophthalmology.

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PRACTICAL EPIDEMIOLOGY OF SYPHILIS

Dudley C. Smith, Charlottesville, Va. (*Journal A. M. A.*, Sept. 5, 1936), maintains that syphilis is a rapidly spreading and widely prevalent disease. The United States Public Health Service estimates that there were 518,000 new cases of syphilis in this country in 1934. There is evidence that it still advances mainly by small epidemics rather than on an even front. This insidious attack along with the infection's association with sex and morals has hindered the application of known medical measures. Stokes has said that syphilis in the human body is like an iceberg, nine tenths below the surface; and this is just as true when the disease is considered from the point of view of general distribution. However, it is possible by using the one tenth above the surface as signals to detect that which is submerged. If the entire population through one generation should be repeatedly examined clinically and serologically for syphilis and every infected person promptly given the minimum standard of modern therapy, the malady could be eradicated. No such action is possible. The approach must necessarily be slower, but the present-day pace should and can be accelerated. Certain groups are now receiving routine examinations and many unsuspected cases are being discovered. This method of detection should become more widespread until eventually the entire population is covered. Another way of attacking this transmissible infection is by tracing source cases and the follow up of contacts of syphilitic patients. This is a direct epidemiologic procedure and if pursued intensively and tactfully is effective.

SPECIAL ARTICLE

MEDICAL ECONOMICS

CARL F. VOHS, M.D.

Chairman, Committee on Medical Economics

ST. LOUIS

The Committee on Medical Economics and its subsidiary committee appointed at the Excelsior Springs Session in May, 1935, set as their objective a survey of all the factors entering into the economic fabric of medical practice. It established a close cooperation with the medical economic boards of the St. Louis and Jackson County medical societies and developed a program which was presented and unanimously adopted at the Columbia Session of the State Association in April, 1936. In brief, the essential points in the program are the following:

1. The adoption of the St. Louis Plan. (Patterned after the Washington, D. C., Plan.)
2. The adoption of a By-law which makes it unethical for a member of the State Association to enter into any prepayment plan not approved by the State Association.

3. That a study be made of the Missouri Medical Practice Act in cooperation with the State Board of Health with a view of such revision as may more effectively safeguard public health.

4. That a study be made of Missouri Workman's Compensation Law with a view of introducing amendments which might make the law as effective as that adopted by the State of New York and to include the right of free choice of physician.

5. The introduction of a bill giving physicians a right of lien in accident cases.

6. The appointment of a special committee to study the advisability of introducing a bill in the legislature creating a public corporation of all licensed physicians holding the degree of Doctor of Medicine in Missouri with a view to formulate and enforce rules of professional conduct for all such physicians.

This program must certainly be considered as comprehensive and its development to the last detail must consume time and infinite patience on the part of all of us.

It is impossible to go into a detailed description of all the plans herein outlined but a brief discussion of certain phases of them may be in order.

The committee was concerned about the unnecessary duplication and reduplication of existing experiments before the original experiment has proved its worth as a basis for future study. It was also concerned with ways and means through which that constant progress

that has ever characterized Missouri medicine may continue in an orderly and sane fashion. It was therefore decided first to put the plan into operation in St. Louis and as experience and a properly trained personnel developed to spread it in definite sequence to other parts of the state as it is requested. The plan in brief consists of three Bureaus; namely, (1) the Medical-Dental Service Bureau, a post-payment arrangement for medical and dental bills; (2) Group Hospital Service, a prepayment plan for definite hospital care; (3) Central Admitting Bureau, a plan by which the very low income group and indigent patients will be taken care of by the medical profession, the dentists, and hospitals in cooperation with relief authorities, county courts, public welfare boards and community chests.

Up to date the first two of these bureaus have been set up and are functioning satisfactorily. The board of directors of the Medical-Dental Bureau is made up exclusively of members of the St. Louis Medical Society, the St. Louis County Medical Society, the Mound City Forum (Negro Medical Society) and the St. Louis Dental Society. Through its agency patients are enabled to meet their doctor and their hospital bills on a basis of time budgeting; the results to date indicate an eagerness on the part of a large group of the working class to avail themselves of this opportunity. All financial arrangements are completed only after they have met with the assent of the individual doctor, dentist or hospital concerned in the problem of the individual seeking help.

The Board of Group Hospital Service is made up of representatives of the public, the hospitals that are in the group, the St. Louis Medical Society and the St. Louis County Medical Society. In essence, the activity of Group Hospital Service consists in providing for workers, in groups of ten, three weeks free hospital service (exclusive of fees of physicians, roentgenologists, pathologists and special anesthesiologists) on the payment of \$9 per year, plus \$1 registration fee by each individual who enrolls. The response to this activity has up to date been most encouraging and we feel that barring undesirable Federal legislation looking to government hospital insurance, we are on the road to provide sane, satisfactory and highly desirable hospital care for that great body of the public that is in a state of economic fixation.

This committee feels that the principles of this plan are sound and are workable. They are to the joint interest of the low income group and indigent sick, public economy, the hospitals and the professions of medicine and dentistry.

Up to the present moment it is important to consider the fact that the public, the hospitals,

industry and commerce have accepted the leadership of organized medicine in an attempt to break down the impasse created by economic factors that were rapidly doing great damage to the public health, happiness and comfort. We have succeeded in no small degree in convincing the thinking public that organized medicine is concerned chiefly and primarily with public health and only secondarily with those material benefits which flow indirectly to the physicians themselves and without which the individual practitioners cannot possibly carry on. The thought has been expressed that in these days when so many are being paid for doing nothing, it seems logical that we find some way to pay the medical profession for doing so much. The State Dental Society has given its complete approval to the plans here outlined and is cooperating to the fullest extent.

In September there is to be a joint meeting of the State Economics Committee and the State Legislative Committee to further develop our program and prepare a legislative program for next year's meeting of the State legislature.

Through the cooperation of the editor, there is to be an article on medical economics monthly in our *State Journal*. Send in criticisms and suggestions to the chairman of the Committee on Medical Economics, 1205 Missouri Building, St. Louis.

TUBERCULOSIS OF CLAVICLE: REVIEW OF LITERATURE AND REPORT OF CASE

Jacob Sirkin and E. A. Baumgartner, Newark, N. J. (*Journal A. M. A.*, July 11, 1936), encountered a patient who developed a tumor over the right clavicle and was found to have tuberculosis of the clavicle. Apparently developing later, at least with symptoms occurring after this, the right kidney was involved and removed. Roentgen examination showed a lesion diagnosed tuberculosis of the sacro-iliac joint by the roentgenologist. The diseased clavicle was curetted and is now healing. Tubercle bacilli were found in the pus removed by needle from the clavicular tumor and injected into guinea-pigs, which developed the typical lesions. Twenty-nine cases of tuberculosis of the clavicle described in the literature showed that this disease occurs in the young adult of either sex and that thorough curetting or excision cures the condition. In one case sunlight, with no other treatment, also apparently effected a cure. It is proved that there is no special handicap in complete removal of the diseased clavicle for, if the periosteum is not destroyed, new bone develops. Bone transplantation has been done successfully. The question of a primary focus in the clavicle vexes here as in other bone tuberculosis. Though infrequently described, there appears to be no anatomic or pathologic reason why primary clavicle involvement cannot occur. Trauma was associated with several of the cases reported; it was definitely not associated in some. Other foci of tuberculosis are described in eleven cases, involving other bones in four cases, while the lungs, glands of the neck, kidneys and breast were tuberculous in others.

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OCTOBER, 1936

ESOPHOGEAL DISTENSION AND CARDIAC PAIN

The increasing incidence of angina pectoris and coronary thrombosis makes it incumbent upon the profession to give careful attention to any new theory of the etiology of these disabling afflictions; the profession must look for new and more effective treatment based upon the investigations of the physiologist. Heberden first described it in 1763 as a disorder of the breast for which he coined the name "angina pectoris"; the affliction has been particularly common among medical men ever since John Hunter, the great English anatomist, died in an attack scarcely twenty-five years after Heberden's description. For many years anginal attacks coming irregularly and usually upon exertion have been considered an evidence of intermittent claudication in the arteries supplying the heart. Certainly, the autopsy has tended to confirm this impression by its demonstration of tortuous, sclerotic vessels with many areas of constriction caused by atheromatous plaques. In the disease generally recognized as coronary thrombosis, the pathological picture of cardiac infarction, especially when it is associated with sclerosis of the coronary vessels, supplies every reason for believing that the entity is entirely cardiac in origin.

Nevertheless there is a general impression among the laity that the symptoms which the physician associates with these serious forms of myocardial injury are due to acute indigestion. The daily papers scarcely fail to record at least one person dying of this disease during the course of twenty-four hours. Therefore the recent paper of Jackson and Jackson¹ becomes of special importance. These authors present data to prove that angina pectoris and coronary thrombosis are but manifestations of a condition which may well be labelled "acute indiges-

tion." These authors "believe that angina pectoris is due to acute incoordinated spasmodic contractions of the esophagus (including its longitudinal muscle layers) and stomach whereby gas or other stomach contents are entrapped under pressure and the walls of either viscus with their contained or adjacent nerves and tissues are strained or injured."

On the whole, they fail to present evidence to prove this attractive thesis. They report not a single experiment on man; they mention no autopsy findings on cases studied by them which revealed an esophageal lesion; they include no picture of a heart taken from a patient with angina pectoris in whom perfectly soft, normal arteries were revealed at autopsy. Their thesis seems to depend upon a few experiments in dogs to whom they gave nitroglycerin and observed a drop in blood pressure and relaxation of the walls of the stomach; they found a rise in the pressure in the pulmonary artery and a fall in the pressure in the carotid artery when a balloon placed in the esophagus was inflated; in the latter experiment the animals underwent simultaneous retching movements. If, as they believe, gas is actually entrapped in the esophagus before anginal attacks are produced, they fail to introduce a scintilla of evidence to prove this important point in their argument. This paper which seemed so attractive at first glance contains rather frequent statements of supposed fact with the preface "it may," or "we believe."

There can be no question that injuries to the esophagus or even dilatation of this organ may produce pain. Payne and Poulton² introduced balloons which could be filled with air into the esophagae of human beings. While they invariably call attention to the production of retrosternal pain they make no mention of pain referred over the area usually associated with anginal attacks. Stretching the esophagus or distension of any form will produce pain; but it is significant that in no instance was the pain referred to the arm. Furthermore, the theory brought forward by the Jacksons implies a simultaneous oppositely moving peristalsis which actually engulfs air in the gullet. Such a conception is opposed to our general understanding of the physiology of the intestinal musculature. Reverse peristalsis in the esophagus, except for mild ripples, is said by Alvarez³ to be quite rare; even this occurs only in the presence of disease. This meticulous investigator states that vomiting is generally due to relaxation of the cardia and esophagus with simultaneous powerful contractions of the diaphragm and abdominal muscles, not to reverse peristalsis in the esophagus as claimed by the Jacksons.

The confirmed belcher, the man who can swallow and regurgitate air at will does not ordinarily suffer from anginal attacks while the air is passing through the gullet; yet this performance offers a close analogy to the theory of the Jacksons that air in this passage produces the symptoms of angina. Patients with esophageal strictures or diverticula do not ordinarily present the anginoid syndrome; yet in them there can be no question of pressure exerted by a distended esophagus on contiguous structures. That eructation is occasionally associated with the relief of anginal pain cannot be doubted. The patient whose anginoid symptoms pass with a gurgle of air as his distended stomach reaches normal proportions proves nothing more than that the transmitted pressure so exerted is embarrassing to the heart already suffering from intermittent claudication.

Certainly the Jacksons have failed to prove that the entrapment of air in the esophagus is the cause of cardiac pain. Perhaps their further reports may contribute substantive evidence; if so they will be welcome. In any event they will serve to focus attention upon the esophagus as a cause of symptoms in man, a viscus too often neglected in the search for the anatomical cause of disease; in so doing they are not entirely devoid of good. But until further crucial experiments are made available to disprove it, the theory of intermittent claudication must be considered the explanation for angina pectoris and arterial occlusion the explanation for coronary thrombosis.

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MASTITIS AND ENDOCRINE DISEASE

One of the vital subjects of medical study during the last quarter century has been the endocrine glands. The literature has been filled with innumerable, often conflicting, reports of laboratory and clinical investigation in this yet difficult field. In some instances endocrine products have been administered by mouth with amazing relief of clinical symptoms; later research has shown that the medicine so given was entirely impotent. Perhaps in diseases related to the breast and to the ovaries, in which one might expect a distinct association, the fallacy has been particularly well demonstrated. It is not uncommon to hear of patients with painful breasts relieved of all pain by the oral

ingestion of gland extracts which are chemically and biologically inert. The recent series of articles in the *Journal* of the American Medical Association offers a vivid demonstration of our present inability to apply the results of the laboratory to the patient in need of treatment; invariably brilliant therapeutic tissue modifications induced in animals are found to be not reproducible in human beings. Such failures do not indicate the worthlessness of endocrinopathic investigation; they serve only to emphasize the need for repeated and more extensive study. On the other hand they will act to make the practitioner justifiably cautious in applying, indiscriminately, a host of glandular products.

As mentioned above, it is to be expected that there is some relationship existing between breast tumors and the ovaries. The former occur only infrequently in men. There is enlargement of the breast in many women during the latter part of the menstrual cycle; the relationship between breast changes and pregnancy is too well known to require comment. Under such circumstances the recent report of Dr. H. C. Taylor¹ of the New York Memorial Hospital will serve to cast much of our present hormonal interpretation of this subject into disrepute. This investigator made an exhaustive clinical and laboratory study of 261 women with different types of the condition ordinarily grouped under the classification of chronic mastitis; he sought for possible correlations between the type of menstrual cycle, its duration and character, the physical findings in the pelvis, and the blood and urine hormone content and the specific type of breast lesion presented. Contrary even to his own expectation he was able to demonstrate no undeniable relationship between hormone metabolism and breast disease although he states that present methods of quantitative hormone assay may not be sufficiently accurate for this purpose.

Reports have appeared from time to time in which unusually large amounts of estrogenic substance have been found in breast dystrophies. For example Lewis and Geschickter² found approximately forty-five times as much estrogenic substance in the enormously hypertrophied breast of a Negress as is found in hog ovaries. The immediate objection to such observations may be made that there is of necessity no relationship existent between the estrogenic content of tissue removed at biopsy and the amount circulating or formed in the abnormal metabolism of the whole patient. In

1. Taylor, H. C.: The Relation of Chronic Mastitis to Certain Hormones of the Ovary and Pituitary and to Coincident Gynecological Lesions, *Surg. Gynec. & Obst.* **62**:562 (March) 1936.

2. Lewis, D., and Geschickter, C. F.: Estrin in High Concentration Yielded by a Fibroadenoma of the Breast, *J. A. M. A.* **103**:1212, 1934.

other instances similar unbelievable reports have been made pointing to an excess of estrogenic substance in tissue removed from human and animal bodies. On the basis of such reports it might be expected that there would be uniform deviations in the amount of such hormones demonstrable in the blood and urine of living patients.

Taylor found, however, that there was no uniformity in the hormonal content of blood and urine in women with painful, nodular breasts, hypertrophied breasts or secreting breasts. The painful, nodular breast is frequently relieved by castration or roentgen treatment of the ovary occurring coincidentally with a fall in estrin excretion; however, the endometrium of these patients does not show changes of the type to be expected in the case of estrin overproduction. Nor does hypodermic injection of considerable amounts of potent estrogenic substance increase the pain or fullness of these breasts. Exclusively from the clinical point of view Taylor finds a large nervous element in patients with painful breasts; the pain is much too extensive, it may come on within such a short space of time as to rule out endocrinopathic stimulation, it is too often associated with other evidence of nervous disorders bearing no obvious relationship to either ovary or pituitary gland. The painful breast is usually edematous and engorged with blood and the pain is not infrequently relieved by simple support. The author puts forth the cautious suggestion that while there must be an ovarian factor in the production of the painful breast, there is a large and important element of nervous stimulation as well as mild local inflammatory changes.

Taylor reaches a similar conclusion in regard to patients with hypertrophied or secreting breasts. An interesting commentary on the uncritical assumption of a relationship between mastitis and menstrual irregularity is afforded by his finding that of the patients with painful, nodular breasts, over half had a normal menstrual period; practically half of those with hypertrophy had a normal period while less than one third of those with secretion had a normal period. Either an unusually long or an unusually short cycle was the most frequent disturbance noted.

While it must be disappointing to have such an exhaustive study fail to demonstrate the sought for relationship between mastitis and hormone irregularities, Taylor's work emphasizes the value of simple therapeutic procedures in the treatment of these not uncommon disorders. Suggestion, a placebo, simple support, correction of pelvic disease, irradiation of the

ovaries, and perhaps rarely endocrine medication, these definite therapeutic suggestions emerge from his investigation.

JACKSON COUNTY MEDICAL SOCIETY DEDICATES NEW HOME

The Jackson County Medical Society met for the first time in its new auditorium in the Receiving Building of the General Hospital at Kansas City on September 15. The Society has met at various places during its long existence but this is the first time it has had a wholly adequate and satisfactory home.

In 1932 through the influence of Dr. Calvin L. Cooper, then Health Director, and Judge Henry F. McElroy, City Manager of Kansas City, the Society was offered space for the library and the use of the nurses' lecture room in the General Hospital and in January, 1933, the library was moved and the Society began holding its meetings in the nurses' lecture room. Since the General Hospital is a city institution this offer indicated an esteem on the part of the city for the organized medical profession in Kansas City and the Jackson County Medical Society is to be commended on the respect which it has earned.

Now the entire third floor of the new Receiving Building of the General Hospital Group is utilized by the Jackson County Medical Society. It includes an auditorium, check room, committee room and wash rooms. There is a fixed seating capacity in the auditorium for two hundred and a maximum capacity for four hundred. There is provision for portable picture machines and a permanent booth for standard machines with sound equipment. A movable platform makes possible varying types of presentations.

Lighting is indirect and the ceiling is insulated for proper acoustics. The room is heated and ventilated by thermostat control.

The auditorium is accessible by ramp from the first floor of the main building and the second floor of the Isolation Hospital and by elevator from the main floor of the Receiving Building. An extension telephone from the checkroom to a closet near the platform makes the secretary of the meeting easily accessible.

The meeting on September 15 was a dedication of the auditorium. Dr. Frank R. Teachenor, Kansas City, President of the Jackson County Medical Society, presided, and addresses were delivered by Dr. Edwin H. Schorer, Kansas City, Director of Health; Judge Henry F. McElroy, Kansas City, City Manager, and Dr. A. Graeme Mitchell, Cincinnati, B. K. Rachford Professor of Pediatrics, University of Cincinnati College of Medicine.

WILD LIFE CONSERVATION PLAN FOR MISSOURI

At last Missouri has been added to that increasing list of states attempting to conserve its wild life on a permanent, sane basis. This plan is headed by E. Sydney Stephens, chairman of the Restoration and Conservation Federation of Missouri, an organization set up to submit the matter to the voters. If adopted by the people the Governor will appoint a nonpartisan, non-salaried board on a civil service type of tenure in office. It embraces a state-wide program beneficial to wild life, which includes game, fish, songbirds, shrubbery, flowers and native timber. This latter may become one of the most important financially. The wide scope of activity will appeal to every citizen within the boundaries of the state. Sportsmen will realize a much finer opportunity for recreation; the nature lover will find much to interest him in flowers and songbirds when spoilage and carnage have ended. At this time, when Missouri is faced with the problems of drouth and soil erosion, the preservation of its native timber makes a special appeal to farmers and conservationists alike, as timbered lands are the greatest single factor in the prevention of drouths and floods, at the same time producing a haven for wild life in its native habitat—the most suitable for its propagation and protection.

This plan calls for no increase in taxes as it will be organized and maintained by revenues from hunting and fishing licenses, this being made easier by an ever increasing number of out of state sportsmen who must pay a high license fee in order to enjoy the state's natural hunting grounds. This can be expected to develop into a larger source of revenue since Missouri, being centrally located and having such stupendous natural resources for development, can be expected to be the number one state of the union in its attraction to sportsmen of all classes.

It is a singular fact that all the states which have adopted this type of wild life conservation have had a tremendous increase in these resources and now offer such splendid facilities to sportsmen that it has developed into a major industry for most of them. There is no reason why the farmer of Missouri should not reap a portion of this rich, certain income, which can be made available by proper administration. This can be put into effect only by constitutional amendment, and it is the duty of every physician in the state to vote "Yes" on Proposition Number Four in November, and so place Missouri where it rightfully belongs as the leading recreation state.

POSITIONS AVAILABLE WITH THE CIVILIAN CONSERVATION CORPS ACTIVITY

At the present time there are quite a number of positions available with the Civilian Conservation Corps activity in the Seventh Corps Area for young men of the medical profession. Doctors having appointments in the Medical Corps Reserve of the Army and Navy may be ordered to duty under their commissions. Those who are not members of the Reserve Corps may be given appointments or they can be employed on a contract basis.

These positions offer the young physician an opportunity to get started in his profession and after a short time to begin his own private practice. Such training will give the physician a better insight in the manner of evacuating and caring for the sick and injured in a national emergency.

Those interested in obtaining positions as medical officers with the Civilian Conservation Corps may communicate with the CCC Surgeon, Headquarters Seventh Corps Area, Federal Building, Omaha, Nebraska.

EXAMINATIONS FOR APPOINTMENT TO MEDICAL CORPS UNITED STATES NAVY

Competitive examination for appointments to the Medical Corps of the United States Navy will be held in December, 1936, and in May or June, 1937. These examinations are held from time to time for graduates from class "A" medical schools.

The requirements for appointment in the Medical Corps of the United States Navy provide that the candidate be a citizen of the United States, between 21 and 32 years of age at the time of appointment; that he be a graduate of a class "A" medical school and have completed an internship of at least one year in a hospital accredited by the American Medical Association and the American College of Surgeons.

Form application in duplicate should be forwarded to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C., at least one month in advance of the date set for the examination. Examinations will be conducted at the Naval Medical School, Washington, D. C.; the Naval Hospital, Great Lakes, Illinois, and the Naval Hospital, Mare Island, San Francisco, California. Approximately ten days will be required for the examination. Application blanks and further information may be obtained by addressing the Bureau of Medi-

cine and Surgery, Navy Department, Washington, D. C. A copy of the circular giving full details of the requirements for appointment and additional data of interest to those contemplating taking the examination will be sent to any licensed doctor of medicine upon his request. For this information address Headquarters, 9th Naval District, Great Lakes, Illinois.

Immediately upon accepting a commission as lieutenant in the Medical Corps of the Navy, the officer receives compensation of \$2,699 per year if he has no dependents and \$3,158 per year if he has dependents. A cash allowance at the rate of 8 cents a mile is allowed the newly appointed officer for travel to his first station of duty. Newly appointed medical officers will be ordered to duty at a Naval Hospital pending assignment to duty in attendance upon a course of instruction at the Naval Medical School, Washington, D. C. This course begins annually on September 15 and lasts six and a half months. Upon completion of the course officers will be eligible for sea duty.

THE CAMP TRANSPARENT WOMAN

A life sized transparent figure of a woman was placed on exhibit recently at the Museum of Science and Industry in New York. The figure was constructed by the German Hygiene Museum in Dresden, Germany, for Mr. S. H. Camp, Jackson, Michigan, manufacturer of physiological supports. Four transparent figures of men have been made and are now located at the Mayo Clinic, Rochester; Buffalo, New York; Stockholm, Sweden, and Dresden, Germany.

The Camp transparent woman is built upon the skeleton of a young Dresden woman who was killed in an accident. The organs were taken from corpses, made transparent, dyed, photographed in color, enlarged and projected on a screen in three dimensions. From the projections artists made tracings which were used by sculptors to model the organs which actually went into the figure. The viscera and the glassy frame of the figure are made of cellhorn, a material which is tough, resilient and impervious to temperature and humidity.

Each organ may be illuminated separately. The figure is equipped with twenty pairs of lamps and as an organ is lighted the name of that organ is flashed on a glass label at the base. The lights are controlled to illuminate the organs in sequence, thus affording ample illumination for demonstration but avoiding overheating the figure. Over a hundred lights illumine the figure indirectly when the organs are not lighted separately.

The figure was brought to this country in the interest of public health education. The figure will be exhibited in about a hundred large cities after which Mr. Camp plans to donate it to some prominent medical school or museum for permanent exhibition.

LISTINGS IN COMMERCIAL MEDICAL DIRECTORIES DECLARED UNETHICAL

Feeling that listings in commercial medical directories are unethical and of no value to physicians, the Arkansas Medical Society passed the following resolution at its annual session in April, 1936:

WHEREAS, Certain commercial interests are publishing medical directories, listing physicians by specialty and otherwise, as available for insurance and compensation work, and other professional services, and

WHEREAS, Participation by listing in these lay publications merely serves for the profit of the promoters, and is furthermore technically indirect solicitation of patients, therefore be it

Resolved, That the Arkansas Medical Society condemns these practices as unethical and forbids its members to continue listing their names in such directories, and be it further

Resolved, That the Arkansas Medical Society requests the House of Delegates of the American Medical Association to take similar action.

The resolution was presented to the House of Delegates of the American Medical Association at the Kansas City Session. The Judicial Council, after study, recommended its adoption and it was passed by the House.

The Arkansas Medical Society quotes one such directory as listing approximately 5000 physicians. The fee for a listing in this directory is \$15 per year. The Society points out that it is purely for the financial benefit of the promoter, estimating the profit on this one directory as \$60,000. Individual physicians have, without doubt, often felt that they would incur a loss if they removed their names from such directories while other members retained their listing. Since the practice is declared unethical there is no reason why a physician should purchase such a listing.

NEWS NOTES

Dr. John R. Caulk, St. Louis, will be a guest of the Ohio State Medical Association at its 90th annual session to be held in Cleveland, October 7 to 9. He will deliver an address on "Obstruction of the Neck of the Bladder in Men, Women and Children."

The next examination for medical licenses by the Missouri State Board of Health will be held in Kansas City at the President Hotel, October 21, 22 and 23.

The Wayne County Medical Society was re-organized at a meeting in Piedmont on August 11. Dr. Thomas C. Piles, Piedmont, was elected president, and Dr. John F. Wagner, Greenville, secretary-treasurer. The Society is in the Twenty-Fourth District of which Dr. T. W. Cotton, Van Buren, is Councilor.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Jensen-Salsbery Laboratories, Inc.

Botulinus Antitoxin (Human) (containing 2500 units each of Type A and Type B Antitoxin)

Sharp & Dohme, Inc.

Grass Mixture Pollen Extract (Timothy, June, Orchard, Sweet Vernal, and Red Top Grass Pollens) and Grass Mixture Pollen Extracts (Pollens of Southwestern Grasses)

Antipneumococcic Serum Types I and II Combined

Nonproprietary Articles

Tetrachlorethylene

Reading one's own blood pressure has taken its place as an amusement and in the East has become the subject of a legal battle. A device at Coney Island by which the individual can make his own reading was declared in violation of the state medical practice act by the New York State Department of Education and the Supreme Court was asked to order such machines out of existence. The maker of the machines countered by filing an injunction to prevent interference with his business and the matter will be settled in the courts. On August 12 an operator of one of the machines was arrested on the charge of practicing medicine without a license but the case has not been brought to trial as yet. Adverse comment on the situation has been made in several publications, among them the September 1 issue of the *New York State Medical Journal* and the August 10 issue of *Time*. The August 29 issue of the *Journal of the American Medical Association* carries a page advertisement of the W. A. Baum Company, manufacturers of ethical blood pressure apparatus, protesting such use of these instruments.

The Missouri Public Health Association and the Missouri Tuberculosis Association will hold a joint session in Columbia, October 1, 2 and 3, with headquarters at the Tiger Hotel. Dr. J. F. Bredeck, St. Louis, is president of the Missouri Public Health Association, and Dr. Irl Brown Krause, Jefferson City, is president of the Missouri Tuberculosis Association. The mornings of the first two days will be taken up by separate sessions for sanitary officers, health officers and public health nurses. On Saturday morning there will be a general session at which Dr. L. M. Garner, Springfield, will preside. On the afternoon of October 1 there will be a general session of the Missouri Tuberculosis Association at which Dr. M. P. Ravenel, Columbia, will preside. In the evening Dr. E. T. McGaugh, Jefferson City, will preside at a general session. On the second afternoon Dr. J. F. Bredeck, St. Louis, will preside at a general session. A banquet for both organizations will be held on the second evening at which Dr. Dudley S. Conley, Columbia, will preside. Missouri members who will appear on the program are Drs. C. F. Adams, Jefferson City; H. I. Spector and J. F. Bredeck, St. Louis; Dudley Robnett and W. J. Stewart, Columbia; J. E. Smith, Rolla; T. R. Meyer, Clayton; Ralph R. Wilson and Edwin H. Schorer, Kansas City. Guest physicians who will deliver addresses are Dr. A. E. Lowe, Chief, U. S. Food and Drug Administration, St. Louis District; Dr. W. K. Sharp, Regional Consultant, U. S. Public Health Service, New Orleans; Dr. G. W. McCoy, Director, National Institute of Health, U. S. Public Health Service, Washington, D. C., and Dr. W. F. Lunsford, Director, Health Department, Kansas City, Kansas. All sessions, dinners and luncheons are open to the public.

Books for Leisure Moments

"The woman who has lived her life on the impulsive or emotional level of functioning will find her basic life pattern unsuited to the demands of later life. The woman who has attained in her earlier life to a rational basis of control may not escape difficult physiological or psychological adjustments in later life, but she can meet them with the assurance of her own strength and adequacy to whatever life can bring." This passage from "Women After Forty" (Henry Holt & Co., New York) illustrates the underlying philosophy of Grace Loucks Elliott's new book dedicated to the purpose of bringing the slowly aging woman en rapport with her environment and with herself. Notwithstanding the essentially emotional nature of women Mrs. Elliott insists upon rationalizing her, upon making her activities the sequence to orderly processes of thought and studied investigation.

Perhaps ultimate rationalization would lead to the

conclusion that there is no reason that women should seek satisfactions in activities outside the home. Perhaps there will be no great loss either to them or to the world if they find their major diversion in a game of bridge rather than the ecstatic appreciation of little understood works of art, if they prefer the blaring syncopation of a jazz band to the delicate nuances of a perfectly blended symphony orchestra, or the throaty utterance of a dusky torch singer to the technically perfect aria of an internationally famed prima donna. While life may be composed of unequal pulls upon opposite attractions (solitude-company, love-hate, pleasure-pain, etc.) it does not seem entirely rational to insist that all persons of approximately equal chronological ages embrace similar philosophies. Perhaps there are satisfactions which the psychological adolescent finds in life regardless of his age. Perhaps greater happiness would be achieved for them and for all people if the psychologist chose to integrate instead of standardize the multiple personalities that move across her threshold.

Dr. Howard W. Haggard whose "Devils, Drugs and Doctors" has found much deserving success contributes a new book, in collaboration with Dr. Clements C. Fry, also of the Yale faculty, designed to afford a better understanding of one's self and one's neighbors. "The Anatomy of Personality" (Harper and Brothers, New York) is a thorough discussion of the factors that go toward the composition of the internal and external manifestations of the individual. It is a plea for insight by the individual into the eccentricities of his own being as well as a demand for a broader interpretation of the eccentricities of his friends and associates in order that there may be increasing happiness in the life of the one and a broader tolerance in the community. There is no attempt at technicality; the book is remarkable for the clarity of presentation of this subject which is too often treated with incomprehensible abstruseness.

Personality is analyzed according to five primary traits: Physique, intelligence, impulse, temperament and ego. In physique men may be pyknic, leptosome, or athletic, well recognized classifications depending upon physical structure. Intelligence is inherited according to Mendelian laws; it must be sharply differentiated from instinct, an inherent mode of behavior which can be predicted with unvarying monotony. Impulse, of course, may be either weak or strong. Temperament, the individual's response to external stimuli is composed of tempo, mood, and depth of feeling; these are not static qualities but the direction of expression is relatively constant in the same individual. The ego may show itself as true egoism in which there is ruthless desire for power regardless of the means necessary to achieve it; it may be egocentric in which event an individual yearns only for prestige; or it may be entirely lacking in "those meek souls of weak ego who we are told with dubious logic 'will inherit the earth.'" Those of weak ego are subdivided into the submissive, the resentful and the sensitive. Frequent illustrative case presentations serve to clarify the exact meaning of individual traits delineated by the authors.

By the individual's response to these concomitant factors of his being and by the degree to which he gains an insight into them, and so modifies his own behavior, is character determined. Man is born with a personality largely predetermined in the genes which go to form his body. Adequate character development serves to modify the rough points of that personality to enable him to live harmoniously with his environ-

ment. At the same time the reciprocal action of his environment may go far toward molding a satisfactory character. It is the interplay of these varied factors, often deflected by timidity or anxiety, by ruthlessness or vacillating indecision, that go to determine the individual's place in the world; of much more importance, to determine the degree of satisfaction which he derives from his sojourn on earth.

With deep humility and charming wit, Dr. Adolf Lorenz, the founder of bloodless surgery, writes of "My Life and Work: The Search for a Missing Glove" (Charles Scribner's Sons, New York). A peasant lad, first dedicated to the Church, a struggling medical student nearly turned out of the medical school by the callous indifference of a stone-hearted dean, prevented from adopting a surgical career on account of a persistent carbolic acid dermatitis, finally the founder of a new school gravitating into world-wide fame, as a consequence of his own genius, suddenly swept into penury and want and actual starvation; that, in brief, is the story of this man.

Behind the bare outlines one glimpses a rugged physique, a persistent ambition to help, a sensitive soul taking hardly the rebuffs which jealous colleagues would heap upon him, somehow surviving to rise in spite of every obstacle to a position of international eminence, a man who would have won the Nobel Prize in Medicine—"except for one vote." Behind the bare facts one finds a man who enjoyed life to the utmost, a many-sided genius bewildered by the complexities of a modern battleship, enthralled by the beauty of the setting sun as its iridescent rays fell upon the profusion of color in the peaceful garden which his own hands and those of his wife had wrought from the bleak earth. Persistence and intelligence enabled the Silesian peasant lad through his own unremitting initiative to surpass himself, to enlarge the heritage that might have made of him a hostler or a cobbler until he was pre-eminent in his chosen field, until nearly the whole world sought to show him honor because of those fine humanitarian attributes which endeared him to all with whom he came in contact, be they prince, pauper or financial baron.

It would appear quite accidental that a bloodless method of treating congenital luxation of the hip was discovered. Harness makers treated many, if not most, bone and joint injuries and diseases; indeed, Lorenz believes that their elaborate braces were superior to all but the most skillful surgeon of that early day. Unable to keep a whole skin because of carbolic acid's corrosive action the youth was finally told by a vexed professor to try dry surgery if he could not stand wet surgery. As if all that might be required was to register in a new course of study at the university; in fact, Lorenz tells us there was no science of orthopedic surgery. And he believes that if the unfit are sterilized, if obstetrics is improved, if nations quit waging senseless wars to appease the vanity of a few short-sighted statesmen whose fame will fade before they are cold in the grave, then there will be little further need for the specialty which he founded; the general surgeon can be depended upon to care for the bones broken in accident.

The visit to America to treat a Chicago meat packer's daughter who had congenital hip disease, marks a change in the psychology of this wonder worker; he seems more egotistical, vain thereafter. Undoubtedly he was impressed by the massive palaces which serve to house the American millionaire; he determined upon building a villa of his own. Despite the constant stream of patients who came to Vienna from the far

corners of the earth Lorenz seemed quite unable to accumulate the modest fortune which his wife urged that he provide for his old age. Yet he was determined upon this mansion, with its huge central hall, beautifully decorated with murals of his own design. There is a bit of irony in the realization of his ambition, for after the war neither the Austrian bonds in which his fortune was chiefly invested were good, nor was there coal to heat his palace.

It must have been as pleasing to Dr. Lorenz to record the graceful compliments which he pays to certain American as well as European physicians as it is for us to read them. Our own Dr. Ravold is singled out for a kindly word for his "meritorious instigation" of the American Medical Association of Vienna in 1903.

Dr. Lorenz sees in life a glorious opportunity to find the missing glove, that is to complement the capacities with which one was born in such a fashion as will bring the utmost in happiness and gracefulness and satisfaction. He does not find it necessary to achieve wealth, fame or position. Indeed, he writes, Alexander the Great, Jenghis Kahn, Napoleon, all found these three and yet they did not fulfill the purpose of life. Rather, life means the opportunity for wise indulgence in pleasure, pleasure derived from service to fellow men. In a few words Lorenz makes clear his own conception of the purpose of life; he offers an old Viennese proverb with all its rich connotation of word meaning, "Live and let live."

In recommending a book on the problems of sex and marriage to prospective wives, or more rarely to husbands, the physician must choose a volume which is not written in language so veiled as to be unintelligent, a volume which is reasonably correct in subject matter, and above all, a volume which treats the subject with a dignity in keeping with its importance. "A Marriage Manual" (Simon & Schuster, New York) by Drs. Hannah and Abraham Stone, directors of the Marriage Consultation Centers in New York fulfills these requirements. Occasionally, greater specificity in describing what some authors call the art of love might prove an advantage to those complete virginal characters who look upon the intimacies of married life with the same awe with which they might regard interplanetary communication.

In two respects one might disagree with the authors. They condemn the use of twilight sleep on account of a supposed increase in fetal mortality; careful studies of the question show that properly conducted the mortality is no greater and may actually be less than in the case of labor conducted without the benefit of this pain effacing treatment. Open to serious question is the statement that male fertility can be determined by premarital microscopic examination of the sperm; while such examination may show actively motile, seemingly normal sperm it is by no means certain that these facts alone insure male fertility. Employment of the "safe period" of female infertility for sexual intercourse is definitely condemned, not only on account of the difficulty in determining this period in irregularly menstruating women but also because expulsion of the ovum may occur at times other than that inferred from the menstrual history.

The Stones are cognizant of the disturbing economic and social influences which thwart the sexual expression of young men and women biologically mature long before they become financially independent, able to enter the marriage state which legally allows the fulfillment of a deep-seated inherent urge. They frown

upon promiscuous sexual relations although they look upon them as the lesser of several alternative evils in strongly sexed persons. With some hesitation they offer the suggestion of "a junior marriage," similar in many respects to the companionate marriage advocated by Judge Lindsay several years ago. But on the whole these authors do not seem optimistic over the success of any form of extramarital relations in our present form of society; rather they would prefer some social reorganization which made early marriage feasible in order that erotic desire might in no way transgress generally acceptable social and moral encumbrances. Sex must be made into one of the highest forms of cultural and esthetic enjoyment in order that its entire value may be achieved by the individual.

OBITUARY

SAMUEL A. MURRAY, M.D.

Dr. Samuel A. Murray, Holden, was born in Holden in 1883 and died at his home there May 12, 1936.

He was educated at the St. Louis University School of Medicine and began his professional career with his father in his home town.

Dr. Murray passed while in the full strength of manhood and usefulness. We, his professional associates, feel that something has gone from us that can never be replaced. He was a capable physician of fine sensibilities and excellent judgment and his work would bear inspection.

As a citizen he was among the first of the town and was honored by being elected mayor.

To his wife and relatives we extend our sincerest sympathy and regrets. He left us too soon.

JOHNSON COUNTY MEDICAL SOCIETY.

EMERY THOMPSON, M.D.

Dr. Emery Thompson, Holden, was born in West Virginia in 1868 and died suddenly at his home, August 8.

He was graduated from the American Eclectic Medical College in Cincinnati in 1893 and located in Holden in 1907 where he practiced his profession for thirty years. He was elected mayor of Holden in 1935 and president of the Johnson County Medical Society in 1936.

Dr. Thompson always had a large practice, was devoted to his patients and received a like devotion from them. His kindly disposition gained for him the friendship of all citizens. He was never heard to make an unkind remark about anyone. He was ever ready to give deference to the opinions of others.

He was a true and faithful friend and a Christian gentleman. "God's finger touched him and he slept." We shall miss him.

JOHNSON COUNTY MEDICAL SOCIETY.

E. H. GREGORY WILSON, M.D.

Dr. E. H. Gregory Wilson, Cape Girardeau, a graduate of Washington University School of Medicine, 1905, died at the Missouri Baptist Hospital, St. Louis, July 12, of gallbladder disease. He had been ill since February. Dr. Wilson was 57 years old.

Dr. Wilson was born in Cape Girardeau and attended the Lorimier School and was graduated from the Normal School in Cape Girardeau. After gradu-



ating from Washington University he did postgraduate work in New York and the following year began his practice in Cape Girardeau.

At the time of his death Dr. Wilson was vice president of the medical staff of the St. Francis Hospital. He was active in organized medicine and had served the Cape Girardeau County Medical Society in various capacities.

It was Dr. Wilson's privilege to be a member of the Aesculapian Club, an international organization, composed of medical practitioners who are members of the third generation of medical men in the respective families. Dr. Wilson was the third physician in direct line in his family. His father was the late Dr. Charles G. Wilson and his grandfather was Dr. William B. Wilson, a pioneer physician in that community.

During the World War Dr. Wilson enlisted in the United States Army and was attached to the Medical Corps. He was located at Oglethorpe and Greenville, South Carolina.

Dr. Wilson was active in Masonic work and in the civic life of his community.

Surviving are his mother, Mrs. Emma A. Wilson, Cape Girardeau; three sisters and one brother.

WILLIAM EDGAR CORNETT, M.D.

Dr. W. E. Cornett, Rush Hill, a graduate of the St. Louis College of Physicians and Surgeons, 1890, died suddenly of heart disease at his home August 24, aged 68.

Dr. Cornett was born in eastern Audrain County. He received his academic education at William Jewell College, Liberty, and the University of Missouri.

He began his medical practice at Worcester, Audrain County, in 1890 but later moved to Rush Hill where he continued in active practice until the time of his death. He died as he sat on his porch, death coming peacefully after a strenuous career. During his long years of practice he had earned the esteem and regard of his community and many remember the hardships of travel which he overcame in his early practice to administer to their ills.

Surviving Dr. Cornett are his widow, Mrs. Ada Berry Cornett, three daughters, three sons, two sisters and several grandchildren.

SAMUEL AYRES, M.D.

Dr. Samuel Ayres was born in Danville, Kentucky, 78 years ago. His parents were Samuel and Mildred Shaus Ayres of Kentucky. He received his A.B. degree from Centre College; the University of Louisville conferred the M.D. upon him. He practiced for a short time in Louisville. He took postgraduate study in New York, just before locating in Great Bend, Kansas, in 1886, where he practiced for two years. He located in Kansas City in 1888, where he practiced until he died August 7, 1936, in Rochester, Minnesota, of pneumonia.

Dr. Ayres practiced nearly fifty years in Kansas City as a physician and surgeon. He was chief surgeon of the Kansas City Southern Railroad. He was a member of the Kansas City Academy of Medicine and the Jackson County Medical Society. He was a member of the First Baptist Church and the Kansas City Club.

Dr. Walter P. Miller, an associate, Mrs. Ayres and his son, Dr. Samuel Ayres, Jr., of Los Angeles, California, were at the bedside when Dr. Ayres died. The remains were brought to Kansas City. Dr. Jenkins conducted the funeral services August 8. The chapel

was not large enough to accommodate the friends; quite a number of physicians were present. Burial was at Chillicothe, Missouri, August 8.

Dr. Ayres saw all the modern methods come into use in the practice of medicine and kept well up in their use. He was a gentleman always. He was kind, polite and very considerate with other physicians in the consulting room. He always left the attending physician stronger with the patient. Owing to these high traits he was frequently called by the younger physicians. He always insisted that the attending physician was the spokesman to give all information to the patients and their friends. He had a very large medical and surgical practice, and operated nearly every morning at 8 o'clock at St. Mary's Hospital, where he was a staff member for many years. Dr. Ayres was a physician who enjoyed the respect, confidence and regard of the medical profession and the community to an uncommon degree. He was a handsome man, well groomed at all times. On all sides one has heard expressions of deep admiration for the geniality, straightforwardness and friendliness which he displayed to physicians and patients. We are sure that the regrets expressed by Dr. Jenkins at his decease, and the sympathy with the surviving members of his family, will find an echo in the hearts of the many to whom he was endeared both as a physician and friend.

Dr. Ayres lived a good life,

Did his work well,

That is Victory.

Mrs. Ayres at the home, 305 West Fifty-first Street Terrace, Kansas City, Missouri, a brother, Mr. Albert Ayres, Kansas City, and an only son, a distinguished dermatologist, Dr. Samuel Ayres, Jr., Los Angeles, California, survive. To all these the medical profession of Kansas City extends profound sympathy—H. F. in the *Jackson County Medical Journal*.

ATHLETIC INJURIES

Marcus H. Hobart, Evanston, Ill. (*Journal A. M. A.*, Aug. 15, 1936), demonstrates that, owing to the present widespread interest in athletics, the study and care of athletic injuries is forcing itself more and more on the attention of the medical profession. The physician should be in full control of the physical side of the team, as the head coach is in charge of the athletic side. They should work together. Under the doctor and the coach there should be trainers, masseurs and physical therapists whose duty it is to keep the men in condition, but any special treatment should be prescribed by the doctor and supervised by him. Complete harmony should exist between all those in charge. All athletes should have a physical examination at least each season. The heart, pulse and lungs should be checked over, examination made for hernias, and any other abnormalities noted. There should have been a recent successful vaccination against smallpox. All injuries should be reported immediately to the team physician. Athletic injuries demand special consideration by the medical profession as they are in a class by themselves. It is necessary for an athlete to obtain a quick but none the less complete cure. Certain advances have been made in the treatment of specific athletic injuries. This review includes twelve years' surgical experience in handling athletic injuries at Northwestern University. Detailed statistics cover a five year period (1930-1934) during this time. In treating or coaching athletes it should always be borne in mind that all serious or permanent disabilities should be prevented and that the individual should come first and athletics is purely secondary.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1936

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 19, 1935.

Montgomery County Medical Society, January 7, 1936.

Ste. Genevieve County Medical Society, January 8, 1936.

Camden County Medical Society, January 9, 1936.

Dent County Medical Society, January 13, 1936.

Perry County Medical Society, January 17, 1936.

Webster County Medical Society, February 4, 1936.

Moniteau County Medical Society, February 29, 1936.

Benton County Medical Society, April 6, 1936.

Phelps-Crawford County Medical Society, April 6, 1936.

Jefferson County Medical Society, April 20, 1936.

BUCHANAN COUNTY MEDICAL SOCIETY

The staff of the Missouri Methodist Hospital and the Buchanan County Medical Society held a joint meeting June 23 with forty present. The meeting followed a dinner given by the superintendent of the hospital, Rev. O. J. Carder. Dr. W. R. Moore presided.

Dr. E. M. Shores read a paper on "Lung Abscess and Lung Gangrene." The paper was discussed by Drs. W. E. B. Hall, W. J. Hunt and O. E. Whitsell.

Dr. J. H. Ryan presented an interesting case of idiopathic epilepsy illustrated with encephalograms. He emphasized two points, the marked atrophy of the brain on the right side as noted in roentgen ray pictures and the marked relief of symptoms of the patient following air injection.

A case of Paget's disease complicated by malignancy was discussed from the standpoint of pathology by Dr. W. E. B. Hall and from the roentgenological viewpoint by Dr. A. B. McGlothlan.

O. EARL WHITSELL, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met August 10 at 8 p. m. at the Colonial Tavern, Cape Girardeau. The president, Dr. Glenn Tygett, Cape Girardeau, presided and the following members were present: Drs. W. B. Hays, Jackson; O. L. Seabaugh, N. F. Chostner, J. H. Cochran, Frank Hall and Glenn Tygett, Cape Girardeau. Dr. Charles T. Herbert, Cape Girardeau, was a visitor.

The minutes of the last meeting were read and

ordered amended to show that Dr. Frank Hall was duly elected to membership on July 13, 1936.

A number of communications were read, none of which required action at this time.

There being no further business the meeting was adjourned.

M. H. SHELBY, M.D., Secretary.

DALLAS-HICKORY-POLK COUNTY MEDICAL SOCIETY

The Dallas-Hickory-Polk County Medical Society held its regular monthly meeting at Urbana in the offices of Dr. L. A. Glasco, September 1, at 4 o'clock with the following present: Drs. L. A. Glasco, Urbana; V. H. Greenwood and G. C. Plummer, Buffalo; G. K. Sims and G. D. Smith, Bolivar; A. J. Stufflebam and M. H. Stufflebam, Humansville, and T. D. Wrinkle, Halfway.

The employment of a nurse for public health service for Polk County was discussed. Nothing definite was proposed on the part of the physicians other than that they were not opposed to the employment of the nurse.

The secretary read a letter from Dr. Joseph B. DeLee of the Chicago Lying-In Hospital in which he tendered the Society the use of his sound film on "Forceps Operation." This offer was accepted by the Society and the film in conjunction with an additional program will be presented at the theater in Bolivar at the next meeting of the Society, October 6. The secretary was instructed to notify a list of physicians of this program, the names to be submitted by the members of the Society, and invite the physicians and their wives to view the film.

The remainder of the time was devoted to an informal discussion of cases in which each member showed a decided interest.

Dr. L. A. Glasco, Urbana, presented a patient aged 80 years with cardiovascular-renal complications who was examined and his condition discussed relative to treatment and prognosis.

Adjournment was followed by a dinner.

G. K. SIMS, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

15th Annual Meeting, Atlantic City, 1937

President, Mrs. Robert Fitzgerald, Wauwatosa, Wisconsin.

President-Elect, Mrs. Augustus Kech, Altoona, Pennsylvania.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

13th Annual Meeting, Cape Girardeau, 1937

President, Mrs. Walter Kirchner, St. Louis.

President-Elect, Mrs. Charles Werner, St. Joseph.

Mrs. Herbert S. Valentine, Kansas City, and her committee have planned many entertainments complimentary to the wives of the physicians attending the 1936 Fall Clinical Conference to be held in Kansas City, October 5 to 8. The Women's Committee will have its own registration desk in the new Municipal

Auditorium. A Community Health meeting will be held Monday night in the Municipal Auditorium. The program includes "Driving Tuberculosis From Our Midst," by Dr. J. Arthur Meyers, Minneapolis; "Fads and Fallacies Regarding Food and Diet," by Dr. Milton A. Bridges, New York, and "Your Heart and Your Life," by Dr. Morris Fishbein, Chicago.

Mrs. C. H. Werner, St. Joseph, president-elect of the Missouri Auxiliary, has charge of the Auxiliary's annual health essay contest. Mrs. Werner suggested three subjects as follow: "The History of Roentgen Ray and Radium and Their Contribution to the Science of Medicine"; "Your Health and How to Preserve It," and "The Prevention and Cure of Tuberculosis," and prepared a list of easily available reference material for each. She asked the president of each auxiliary to indicate which subject she thought best for the contest. The final decision will be announced at the fall board meeting and the subject chosen and the rules for the contest will appear soon in *THE JOURNAL* and in the October issue of the *Quarterly Bulletin*. The essay contest is one of the most important things that the Missouri Auxiliary does and it is expected that this year's contest will be as successful as those in the past.

Mrs. W. T. Martin, Albany, chairman of public welfare for the Missouri Federation of Women's Clubs, has prepared a survey of the welfare agencies in Missouri. A series of articles containing this most valuable information will appear in the *Missouri Clubwoman*. The first article, on the agencies dealing with the blind, the deaf and crippled children, was published in the October number.

The sympathy of all members of the Missouri Auxiliary is extended to Mrs. R. W. Waller, St. Joseph, in the death of her husband, Dr. Waller, who was accidentally killed while on a hunting trip.

Mrs. David S. Long, Harrisonville, first vice-president of the Woman's Auxiliary to the American Medical Association, gave addresses before the auxiliaries in three states, Utah, Idaho and Colorado.

The fall meeting of the Executive Board of the Missouri Auxiliary will be held in Columbia on September 24. The following women comprise the board for 1936-37: President, Mrs. Walter Kirchner, St. Louis; president-elect, Mrs. C. H. Werner, St. Joseph; vice-presidents, Mrs. Frank W. Gillham, Jefferson City; Mrs. William R. Patterson, Warrensburg; Mrs. C. T. Ryland, Lexington, and Mrs. Herbert L. Mantz, Kansas City; secretary, Mrs. R. C. Haynes, Marshall; corresponding secretary, Mrs. Frank Davis, St. Louis; treasurer, Mrs. C. M. Sneed, Columbia; auditor, Mrs. Paul Cole, Springfield; directors, Mrs. S. H. Snider, Kansas City; Mrs. G. D. Walker, Eldon; Mrs. Y. D. Craven, Excelsior Springs; Mrs. W. H. Breuer, St. James; Mrs. T. S. Lapp, Fulton; Mrs. J. M. Trigg, St. Louis; Mrs. P. O. Upshaw, Springfield; Mrs. E. E. Brown, Cape Girardeau; Mrs. H. W. Carle, St. Joseph, and Mrs. H. S. Dowell, Chillicothe. Chairmen of standing committees are: Archives, Mrs. George W. Ruddell, St. Louis; essay contest, Mrs. C. H. Werner, St. Joseph; finance, Mrs. Irl Kraus, Jefferson City; *Hygeia*, Mrs. W. E. Koppenbrink, Higginsville; legislation, Mrs. Frank Davis, Nevada; organization, Mrs. Frank W. Gillham, Jefferson City;

press and publicity, Mrs. W. H. Goodson, Liberty; program, Mrs. Ola Putnam, Marceline; public relations, Mrs. W. C. Cheek, Springfield; revisions, Mrs. M. Pinson Neal, Columbia. The adviser of the Missouri Auxiliary is Dr. J. F. Harrison, Mexico, Mo.

BOOK REVIEWS

MEDICAL MYCOLOGY; FUNGUS DISEASES OF MEN AND OTHER ANIMALS. By Carroll William Dodge, Ph.D., Mycologist, Missouri Botanical Garden; Professor, Henry Shaw School of Botany, Washington University, St. Louis. Illustrated. St. Louis: The C. V. Mosby Company. 1936. Price \$10.00.

There has existed for a long time the need for a book on medical mycology. Since the interest in the fungi in relation to disease in man has been periodic and in recent years has increased a thorough survey of the subject, such as Professor Dodge's book, comes at an opportune time. The literature concerning these organisms is widely scattered and the points of view of various writers have been so divergent that there is great difficulty in attempting to approach this field. Classifications and nomenclature are mazes through which it is difficult to thread one's way without extreme effort and much loss of time. To the uninitiated, morphology is necessarily confusing and difficult since many older descriptions are unsatisfactory or obscure.

Professor Dodge has chosen to present the field of medical mycology fully, lucidly and with abundance of reference to the work of others. He thus brings together a vast amount of information which permits the reader to follow the ideas of others and to gain an insight into the differences in nomenclature and classification which exist. Certainly the book can serve as aid to the beginner and to the advanced worker as a text and as a reference source. Whether one does or does not agree with the classifications adopted in the work it does serve the purpose of identification of organisms and will be a great aid to workers in this direction. To any one working in the field of medical mycology this book will be practically indispensable.

The chapter on morphology is excellent, giving a satisfactory basis for approach to the study of the fungi. One might wish that more space had been given to physiology and media but probably the author was forced to choose between writing an encyclopedia or a book. Possibly however the weakest link is in those chapters which relate to the clinical-diagnostic measures and in a later edition these might well be amplified. One may speak of a later edition for the book deserves to have a long life.

M. S. F.

INTERNATIONAL CLINICS. By Leading Members of the Medical Profession Throughout the World. Edited by Louis Hamman, M.D., Visiting Physician, Johns Hopkins Hospital, Baltimore, Md. Volume I; 46th Series, 1936. Philadelphia: J. B. Lippincott Company.

The best known names in this volume are those of C. P. Howard, Donald Balfour, Kenneth Blackfan, Abraham Cantarow, Judson Daland and Soma Weiss.

The important articles are the case reports from Montreal by Howard and Rhea of "Simmond's Disease"; Steele's (of New York) article on "Fever in Heart Disease"; and "Meralgia Paraesthetica" by Ferdinand C. Lee of Baltimore. Other interesting articles are Cantarow's "Review of Phosphatase Ac-

tivity and Calcium and Electrolyte Metabolism"; the "Arteriosclerosis of the Lower Extremities in Diabetes Mellitus" by Olmsted of St. Louis. "Basal Pulmonary Tuberculosis," which has considerable present day interest is discussed by Burgess Gordon of Philadelphia.

Naturally every reader has a different viewpoint. But to your reviewer, Morrison's explanation of certain cases of pernicious anemia seems decidedly improved. On the other hand, Lee's discussion of meralgia paraesthetica offers the explanation of puzzling cases occasionally met in practice. Soma Weiss' article on the "Dangers of Sedatives and Hypnotics," is a timely reminder of the need of caution in dealing with those very popular drugs.

C. H. H.

RECENT ADVANCES IN DERMATOLOGY. By W. Noel Goldsmith, M.A., M.D. (Camb.), M.R.C.P. (Lond.), Physician to St. John's Hospital for Diseases of the Skin, etc. With foreword by A. M. H. Gray, C.B.E., M.D., F.R.C.P. (Lond.), F.R.C.S. (Eng.) With eighty colored plates and fifty text figures. Philadelphia: P. Blakiston's Son & Co., Inc. 1936.

This book is one of a series on recent advances in the various branches of medicine. If we are to assume that twenty years come under the meaning of recent, then there will be no misgivings about the content of the book. The subject matter is well chosen and well rounded out by the author's opinions. The important English, American, French and German contributions to scientific dermatology are grouped under separate headings and have been well selected. The relationship of general medicine to cutaneous pathology is stressed throughout.

The book is a "find" and will be appreciated by the specialist. Doubtless the general practitioner, whose dermatological knowledge is often limited to "calamine lotion" and "nervous rashes" would obtain a great many suggestions from this valuable volume.

N. T.

A TEXTBOOK OF SURGERY. By American Authors. Edited by Frederick Christopher, B.S., M.D., F.A.C.S. Associate Professor of Surgery at Northwestern University Medical School; Chief Surgeon, Evanston Hospital. With 1349 illustrations on 730 figures. Philadelphia: W. B. Saunders Company, 1936. Price \$10.00.

This new volume contributed by one hundred and eighty odd authors and edited by Frederick Christopher is a virtual roll call of American master surgeons, nine of them St. Louisans. While it is true that all men do not write with equal clarity and conciseness the smooth integration of these chapters sets a new standard in the field of surgical texts.

The book reads almost as easily as a novel, a quality all too rare in medical writing. Although it is quite bulky, there is no padding, and despite its diversity of authorship the reviewer detected no repetition.

The surgical specialties are well presented and a surprising amount of detail is included. There are, moreover, frequent short bibliographies of the pertinent and recent literature.

The book is decidedly not an introduction to the study of surgery but a mature counsellor from which even the most experienced surgeon will receive help, if not solace.

The publishers, the editor and the contributors are to be congratulated on producing so fine a book. It

should find wide popularity among medical students and practicing surgeons everywhere.

B. S. P.

EXAMINATION OF THE PATIENT AND SYMPTOMATIC DIAGNOSIS. By John Watts Murray, M.D. With 274 illustrations. Second Edition. St. Louis: The C. V. Mosby Company, 1936. Price \$10.00.

The appearance of a second edition of any medical book is sufficient evidence of its popularity and usefulness. Recent advances in medicine have not been neglected in bringing this second edition up to date as is particularly well shown by the closing pages on the hormones.

The illustrations are for the most part good, but portray the extreme and characteristic types of disease rather than the incipient and perplexing cases that are the difficult problems of diagnosis.

The book runs over twelve hundred pages and the printing and format are very good. There is an index.

B. S. P.

BEHAVIOR DEVELOPMENT IN INFANTS. A Survey of the Literature on Prenatal and Postnatal Activity 1930-1934. By Evelyn Dewey. Published for the Josiah Macy, Jr., Foundation. New York: Columbia University Press. 1935. Price \$3.50.

This volume is a summary of the literature since 1920 on the "theories drawn from psychology and biology on the fundamental processes underlying growth and development of behavior, and to objective studies of fetal and infant behavior."

No controversy of opinion of the investigators is entered into by the author. The material is well organized and presented clearly in the four parts, "Growth Processes," "Behavior of the Human Fetus," "Neonatal Behavior," and "Behavior During Infancy," and will be of interest to the psychologist and physiologist.

The author's summary and conclusions include comments on the adequacy and inadequacy of the material offered in the bibliography of 216 references.

R. M. H.

ABORTION; SPONTANEOUS AND INDUCED; MEDICAL AND SOCIAL ASPECTS. By Frederick J. Taussig, M.D., F.A.C.S., Professor of Clinical Obstetrics and Clinical Gynecology, Washington University School of Medicine, St. Louis. Illustrated. This volume is one of a series dealing with medical aspects of human fertility sponsored by The National Committee on Maternal Health, Inc. St. Louis: The C. V. Mosby Company. 1936. Price \$7.50.

This is a comprehensive work on abortion in all its aspects. The purpose of the book is to impart to the practitioner proper methods of treating abortions, and in addition to consider the social and medical causes of both spontaneous and induced abortions. It further considers the legal aspects of the problem with suggestions by the author of new legislation which would tend to diminish the number of criminal abortions and at the same time widen the scope of induced abortions for definite medical and social reasons.

The anatomy of early pregnancy is reviewed following which the pathology, etiology, prevention, symptomatology and treatment of abortion are taken up. The role of focal infection in the etiology of abortion is discussed, together with dietary deficiency and many other causative factors which are ordinarily not taken into consideration by the average physician. The com-

plications resulting from operative intervention are discussed in detail. The indications for therapeutic abortion are candidly stated and methods for performing same are given. The dangers and uselessness of commonly used abortifacients are well brought out.

Chapter XXVI is devoted to "Legalized Abortion in the Soviet Union" based on the author's personal observations in Russia.

The appendix of the book is made up of an interesting array of statutes relating to abortion in each state and territory of the United States. A valuable glossary of terms for the student is also appended.

A twenty-three page bibliography completes this exhaustive, well written treatise. R. B.

PARENTERAL THERAPY. A Ready Reference Manual of Extra-Oral Medication for Physicians, Dentists, Pharmacists, Chemists, Biologists, Nurses, Medical Students and Veterinarians. By Walton Forest Dutton, M.D., Formerly Medical Director, Polyclinic and Medico-Chirurgical Hospitals Graduate School of Medicine, University of Pennsylvania, etc., and George Burt Lake, M.D., Formerly Special Lecturer in Hygiene, Purdue University; Editor, Clinical Medicine and Surgery; Associate, American College of Physicians, etc. Illustrated with ninety half-tones and line engravings. Springfield, Illinois: Charles C. Thomas. 1936. Price \$7.50.

This is one of those elaborately gotten up volumes of Thomas', attractive in appearance and gratifying to have on the shelves.

The contents, however, constitute merely a vade mecum for beginners in the art of using the needle for subcutaneous, intramuscular, intravenous and intraspinal work. The technic is described very well. There is a large therapeutic index, pharmacologic index, and a series of comments on the various preparations now offered for parenteral use.

Inasmuch as the contents of this book are chiefly for ready reference work, your reviewer would have preferred to have seen this appear in a smaller format, bound in limp leather suitable for carrying with one in the pocket or in the car. As it is the book will have to stand on the physician's desk for reference when he is puzzled by some unexpected problem. G. H. H.

INTERNATIONAL CLINICS. By leading members of the medical profession throughout the world. Edited by Louis Hamman, M.D., Visiting Physician, Johns Hopkins Hospital, Baltimore, Md. Volume II. Forty-Sixth Series, 1936. Philadelphia, Montreal, London: J. B. Lippincott Company.

The timely discussion on "Glomerular Tumors," by Chas. F. Geschikter, Baltimore, on the surgical side; and the "Erythrocyte Sedimentation Test," by Wintrobe, on the medical side, are two outstanding articles in this number.

There is an article on "Diet in the Treatment of Heart Disease," by Proger and Magendanz of Boston. One on "The Treatment of Simple Goitre," by Webster of New York, one on "Nutritional Edema" by Weech of New York City, which have considerable practical value. The articles on "Pathological Physiology of Emphysema," and "The Syndrome of Hemocentration, Health and Disease as Influenced by Climatic Environment," and "Extracellular Body Fluids" are of interest in influencing our theories of the practice of medicine.

When one comes to discuss the matter of practica-

bility of suggestions and methods, it is interesting to notice that in Wintrobe's article on blood sedimentation he states that it must be carried on in a temperature between 20 and 27 degrees Centigrade. When one remembers that in Missouri a temperature below 90 Fahrenheit is unusual during the summer, and that rooms are heated above that temperature in winter, one realizes that one cannot carry out his sedimentation test under the ordinary conditions of a physician's office. G. H. H.

THE TRUE PHYSICIAN. The Modern "Doctor of the Old School." By Wingate M. Johnson, M.D. New York: The Macmillan Company. 1936. Price \$1.75.

The fact is that when a doctor lapses from the scientific literary forms of the professional journals he not infrequently turns out delightfully readable essays. The writings of Oliver Wendell Holmes, Stephen Paget, William Osler and Berkley Moynihan are cases in point. To this last must be added Wingate M. Johnson, "The True Physician" marks him as a man of letters as well as medicine.

The book consists of twelve chapters devoted to internships, locations, and getting started in practice. To the reviewer, however, the best essay is entitled "The Principles of Medical Ethics." If arranged in pamphlet form it could well be placed on the waiting room table for lay reading.

The final chapter on "A Physician's Reading" is very interesting. Dr. Johnson lists sixteen books which he thinks every physician would do well to read. Like Sir William Osler he is an admirer of Thomas Browne's "Religio Medici," but he also includes "Private Worlds," by Phyllis Bottome.

In summary "The True Physician" reads easily and is well worth its hour of any doctor's leisure.

B. S. P.

ALLERGY OF THE NOSE AND PARANASAL SINUSES. By French K. Hansel, M.D., M.S., Assistant Professor of Clinical Otolaryngology, Washington University School of Medicine. Illustrated. St. Louis, Missouri: C. V. Mosby Company. 1936.

This monograph presents the basic principles of otolaryngological practice and all the accumulated knowledge of allergy as it pertains to the nose, paranasal sinuses and the eye.

It consists of thirty-five chapters, the first of which deals with the fundamental principles of paranasal sinus disease, the physiology of the nose, the pharmacologic action of drugs upon the nasal mucosa, the biochemistry of the nasal secretions and the bacteriology of the nose.

In subsequent chapters, the nasal symptoms and the results of examination as found in all clinical manifestations of allergy are discussed; diagnosis and treatment are comprehensively and exhaustively reviewed.

The final chapter deals with case histories, which illustrate some of the phases of nasal allergy and the methods used in diagnosis and treatment.

The book is a veritable encyclopedia, containing the data from a voluminous bibliography supplemented by the author's clinical experience with nasal allergy. It becomes, thereby, a valuable book of reference as well as a clinical guide, not only for those whose especial interests are in allergy as related to the nose and eyes, but also for those who have an interest in all its clinical manifestations. C. H. E.

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CANCER VIEWED AS A PREVENTABLE DISEASE

M. PINSON NEAL, M.D.

COLUMBIA, MO.

To study cancer without a knowledge of its cause is to sail an uncharted sea, while to attempt its control without a knowledge of and interest in its prevention would be as valueless as the efforts of the extremely industrious but blind mole.

The prevention of cancer is little practiced and not commonly conceived of as a possibility in decreasing the great economic loss and diminishing the deaths from this disease. How much more important it is to prevent a cancer than to recognize it early and know how to treat it properly. For the man who spends his energy preaching early recognition of cancer and its treatment, when of the twenty-five cent size, I would ask, "Why wait until it is a cancer?"

The often repeated statement, "The time to cure a cancer is before it starts," means prevention. Humanity can be as richly served by our teaching, preaching and practicing cancer prevention and the substitution of intelligence and optimism for ignorance and fear as through early diagnosis and prompt treatment.

Through the various agencies used in the prevention of the infectious and contagious diseases, and developed largely within the last fifty years, the span of man's life has been increased by twenty or more years. The price for this prolongation of life has been an increase in cancer and the degenerative diseases. There does not exist, nor need we expect, an anticancer serum or vaccine. Prevention then must be otherwise practiced.

As physicians we need to further a sane program of cancer prevention and practice it ourselves for we cannot indulge in excesses and expect abstinence of our patients. It would be

futile to ask that man give up many of the things he now enjoys. There are other things, however, which are not necessary for comfort, peace of mind and well-being that can be corrected or removed, such as tooth snags, irritating dental appliances, indolent sores, ulcerations, fissures, fistulae, pigmented moles, cervical tears and infections and retentions in various organs.

ETIOLOGY

To speak of the prevention of a disease is to imply that the cause is known. Etiology in general involves two rather different factors: First, direct or immediate and, second, indirect, remote or predisposing. Experimentalists, in the search for a universal cause of cancer are wont to ignore the latter factor and to think, speak and write only in the terms of the former. Cancer is the result of some effect upon cells which causes them to take on excessive and unlimited growth. The exact mechanism, the direct cause of this is not known.

The conditions under which cancers have with more or less regularity arisen are looked upon as being indirect, remote or predisposing causes. Some of these are well established:

A. Intrinsic, endogenous or biocellular factors; those which exist as a part of the make-up of the living body. Some of these are present as hereditary traits; others are acquired.

1. Embryonal or congenital cell group displacements (Conheim's theory). Certain tumors of the ovary, testicle, adrenal and kidney, nevi, chordomas and the chorionepitheliomas of the male and the virginal female are thus accounted for but not that large group of clinical cancers seen in man.

2. Regional abnormalities and developments. The undescended testicle and branchiogenic cysts are not uncommon sites for the development of carcinoma.

3. Inherited predisposition, local or general. By animal experiments it has been shown that under the influence of breeding alone cancers can at will be produced in 94 per cent of or entirely eliminated from a strain of mice.

4. Age. About 75 per cent of the deaths from cancer occur after the fiftieth year of age and the incidence of the disease is sixty-six times greater after the thirty-fifth year.

Read at the 79th Annual Meeting of the Missouri State Medical Association, Columbia, April 13-15, 1936.
From Department of Pathology, University of Missouri.

5. Changes in metabolism and decline of sexual functions. These are generally considered as changes incident to advanced age.

6. Hormones. Nothing has been proved relative to the part which these may play in carcinoma in general. Evidence indicates that certain hormones play a role in the production of cancer in some organs but it is not conceded that they constitute a specific cause.

7. Overnutrition. It has been recognized for years that the overfed, overweight individual is more prone to cancer.

8. Scale or mode of living and over-civilization. Statistics show a higher cancer rate in civilized countries and among the professions, but there is not sufficient data to determine what degree civilization and advancement offer as predisposing or as purely revealing factors.

9. Chemical alterations of tissues. Wells¹ has stated, "... and still less has any substance (*chemical*) been detected that accounts in any way either for the occurrence of tumors or for the effects that they produce."

10. Present or preceding disease of the organ or tissue. Such conditions as cryptorchism, large scars subject to fissuring, indolent ulcers, leukoplakia, keratoses, stagnation of excretions and atrophies play important parts in cancer production.

B. Extrinsic or exogenous agencies.

1. Parasites. It is generally agreed that cancers are neither infectious nor contagious. Every possible parasite has at one time or another been incriminated as a cause of cancer. However, in those infections more or less associated with the occurrence and development of malignant tumors in man and animals, not the least evidence of a specific causal relation of the parasite to the tumor has withstood crucial tests. A finding that is very convincing against their direct causal relationship is that the parasites which have been demonstrated in or about primary tumors are not found in the metastases nor in the successful transplants of such tumors. The most that can be said is that parasites in man and the lower animals lead to a variety of chronic irritations that in turn may become predisposing factors for carcinoma.

2. Diet. It cannot be said that the use of any particular food increases the liability to cancer or prevents its occurrence, but irritations arising from the use of excessively hot or cold foods are recognized as playing a part in their production.

3. Occupation. Cancers are not uncommonly produced by tissue changes or through abuses incurred in certain trades or occupations, as among radiologists, chimney sweepers, paraffine and aniline dye workers, and laborers in certain mines or those who handle the products of such mines.

4. Irritation (Virchow's theory). The irritation theory is one that has universal recognition. In the correction and removal of irritants lie the chief hope for cancer prevention.

For the production of cancer in man or animals three factors appear necessary: First, the inherited susceptibility, local or general disposition to the disease, suitable soil; second, repeated irritation or chronic stimulation to cell growth of the correct type, at the proper location and at the right time, proper cultivation of the suitable soil; third, age, a period of time

necessary for soil preparation, germination and growth.

Heredity.—An inherited disposition to cancer is recognized and has been proved in experimental animals by Slye, Simpson, Loeb and others. Local susceptibility often does not amount to more than the response of some anatomical area to repeated local irritation or injury which arose from a habit, custom or occupation. The localization of such cancers is encountered in the hands of roentgen ray workers, scrotum of chimney sweepers, lower lip of pipe smokers, tongue from jagged teeth, cheek from the betel nut or buyo leaves, skin of the abdomen from the Kangri basket, the esophagus from hot or cold ingesta and horn core of work oxen in India.

Loeb and co-workers² state "... it has been shown that in different strains of mice kept under the same environmental conditions, the incidence of mammary cancer may vary from almost 100 per cent to 0. Each strain has its characteristic tumor incidence which remains approximately constant in successive generations." This indicates a systemic susceptibility limitation or distribution. The tendency of the gray horse or mule to develop the black pigmented, malignant skin tumors also indicates a systemic susceptibility.

Hereditary predisposition to cancer has not been proved to be of practical importance or value in man, largely because heredity cannot here be controlled or directed. Environment can be modified and therein lies hope for cancer prevention. The occurrence of cancers in two or more members of a family, or in succeeding generations of a family, is probably no more than the "law of chance" would predicate when one takes into account such factors as age, occupation, habits, customs and peculiarities of structure or function that are rather common to some families.

In the experimental production of cancer in general and in the clinical types of man, it has been observed that all of those subjected to one or more of the various irritants do not develop the disease. Miss Slye³ has concluded that large numbers of vertebrates are totally immune to cancer under conditions known to produce it in others of the same species, race and family.

Age.—Of those who reach the age of 70, about one third die from cancer. Records for special tissues and organs reveal that from 70 to 94 per cent of the cancers develop after the fourth decade of life. With the general lowering of tissue resistance added to the great numbers and varieties of insults and irritations that one acquires incident to a long active life, old age must be accepted as playing an important role in the production of carcinoma.

Irritation.—Virchow's theory based on the belief that many cancers result from some chronic insult, injury or irritation to previously normal cells, finds most students of oncology in accord.

After a study of approximately 35,000 surgical and autopsy specimens that it has been my privilege to handle, I believe, with others, that cancer rarely, if ever, arises in a perfectly normal tissue. Chronic irritations of various types and cancer are running mates among the dogs of the chase and the kill. Adult tissue cells have function or service as their purpose. Cancer develops through such cells, changing from that group purpose of service to one of individual growth energy, unlimited, and against which the body defenses are apparently powerless.

Many tissues of man become slaves to and are injured through his fads, whims and fancies as the overexposure of the body surface to the sun, the consumption of very hot or cold foods and drinks, the inhalation of tobacco smoke and the retention of the natural body excreta for unbelievable hours. Just as slyly as do other slaves, the tissues avenge such punishment and insult.

Types of Irritants.—Cancers develop in regions exposed to repeated injury or irritation from without or within, and in organs which undergo periodic fluctuations in size and function or suffer stagnation of their products. Irritants may be grouped under the general terms of mechanical or trauma; actinic, roentgen ray and radium, physical, thermal, chemical and toxic, chronic stimulations to cell growth and stagnation.

The injection of scarlet red, the application of coal tar, repeated but slight trauma, local excesses of heat, excessive exposures to roentgen ray, radium, mesothorium and sunlight, the presence of parasites, prolonged and injudicious intake of arsenic, gall stones, retention of excretions, and certain hormones have been variously implicated as contributing to cancer of man and have been found capable of producing the disease in experimental animals.

Repeated slight traumata may be one of the predisposing factors to cancer growth, but there is no experimental evidence that such can be produced at will by a single slight or severe trauma. Ewing⁴ has laid down postulates that must be met before a single such injury can be accepted as a cause. When applied to a definite precancerous lesion it may be the deciding factor toward cancer development.

Stagnation of mammary secretion within the ducts and acini, the incident physical and chemical changes that take place as resorption of fluid, the precipitation of some salts and the

formation of others have been shown both in women⁵ and the experimental animal⁶ to cause a higher incidence of cancer than in those breasts where no such retention is encountered.

Female dogs, in which breast drainage is often interrupted through removal or destruction of the puppies soon after their birth, commonly have cancer of the mammary glands, particularly the more posterior ones which appear to be the most frequently engorged or caked.

In the mammary gland of cows, where stagnation is little known, the finding of a cancer would indeed be scientific news. Dr. L. Enos Day,⁷ for many years a member of the United States Bureau of Animal Industry and Chief of the Meat Inspection Division at the Chicago Stock Yards, has stated, "During my service in the Bureau of Animal Industry, I have not encountered carcinoma of the mammary gland in cows, but carcinoma of other organs is not rare in old cows." A belief has been expressed⁸ that the bovine udder has some specific resistance or immunity to carcinoma. In 1921, the same writer stated, "There is no authentic report of the presence of primary carcinoma of the udder of the cow."

In a strain of mice in which 72 per cent of the females regularly developed cancer, with none occurring in the males, Lacassagne,⁹ by injecting large doses of an estrous producing hormone, has succeeded in producing mammary cancer in certain numbers of the males. Simpson¹⁰ states "If the ovaries from mice of a high cancerous strain are removed before puberty, none of them will develop cancer of the breast." His explanation of this is important: "This procedure prevents secreting cells to be formed in this organ." These observations do not conclusively indicate that a hormone is the cause of cancer, nor has the hormonal effect been entirely separated from other possible factors. It stands to reason that if there are no secreting cells there will be no cancer. The absence of the ovarian hormone may prevent the development of the cells, but it does not follow that it thereby, when present, directly causes cancer. A study¹¹ on sixty cases of malignant tumors of the male breast, of which fifty were carcinomas, revealed that the disease was eighty times proportionately more prevalent in the female breast than in the male. This cannot be entirely explained on the estrous producing hormone basis.

Cancer is a mode of tissue reaction to something that injures normal cells and causes them to become anarchists, bolshevists, radicals or independent growers—not workers, within the living body. There can be no doubt that the soil in which a carcinoma grows must be prepared. This requires continuous or frequent contact of

an irritant with the tissue in which the cancer develops, as in pipe smoking.

Some irritants make themselves known and the symptoms and manifestations they cause bespeak a warning to the patient. Others are not so demonstrative in their action nor are the signs and symptoms they produce notable or emphatic. They may be so quiet and subtle that they are difficult or impossible to define, detect or recognize, but the results may be none the less certain. This recalls the story of a newly arrived Italian immigrant who obtained employment on a Florida farm. He was cautioned about movable objects in the grass that make a rattling noise and warned that they were deadly and to be avoided. Some time later in a swimming hole when bitten by a moccasin, a non-announcing snake, he was heard to exclaim, "Rattlesnake, why the hell you not ringa da bell?"

After a review of the variety, types and nature of the irritating substances that have been associated with clinical or experimental cancer as chemical, thermal, actinic, physical, roentgen ray, radium, syphilis, tobacco, retentions, scars, parasites, tar, etc., it is obvious that to attempt or expect to isolate from or find in these a common cause for cancer is a hopeless undertaking. This all the more emphasizes their nature as predisposing, not inciting, causes to cancer in a tissue that harbors a hereditary disposition to the disease.

Emphasis on the irritation factor and the correction or removal of the irritant is of potential practical value. The effects of chronic irritations in most cases are given a rather extended period of time in which to announce themselves or ring a bell, so to speak, before cancer develops. The value of cancer prevention has been well demonstrated through the proper care of certain precancerous lesions such as keratoses, leukoplakias, chronic cervicitis and kraurosis vulvae.

CLINICAL CANCER

A summary of some of the definite and pointing factors related to or associated with the production of clinical cancer in some anatomical locations and organs is of interest and value. The prevention of cancer depends to a large degree upon the correction or removal of such defects and irritants.

Cancer of the Skin.—A certain regularity in the occurrence of cancer of the skin is undeniable and the locations correspond to:

1. The physiologic or senile atrophies such as occur over the cheek, bridge of nose, forehead, temple regions, ear, vulva and dorsum of the hands.
2. Areas particularly exposed to the natural elements, especially the actinic rays, as the dorsum of the hands, the face, ears and protruding, mother-in-law

type lower lip which is irritated by sunlight, cold, wind and drying. Cancer of the unprotected areas of skin occur almost twice as often in males as in females and are most frequent in farmers, gardeners, sailors, herdsmen and workers exposed to chemical and thermal influences.

3. Burns, especially of the hands of those who handle roentgen ray machines and radium.

4. The lower lip where, by habit, a pipe is commonly held in smoking, and both lips, with the repeated cracks, fissures and leukoplakias.

5. The scrotum of chimney sweepers.

6. The Hindus who carry hot charcoal stoves by resting them on or against the abdomen have a high incidence of cancer where these irritate the skin. This particular tumor is practically unknown under other conditions.

7. The penis, largely the result of chronic irritation due to redundant prepuce, uncleanness and retention of smegma. It is almost unknown among those who practice circumcision.

8. The vulva, after menopause, upon a chronic atrophic dermatitis (kraurosis vulvae), fissured or leukoplakic vulvitis. These are definite precancerous lesions for over 50 per cent of the uncorrected cases terminate in carcinoma.

9. Paget's disease of the nipple, irrespective of whether considered primarily a malignancy or secondary to inflammation of the nipple or the ducts.

Pigmented skin nevi or moles, particularly where subject to irritation when elevated and of bluish black color, are potential sources of malignancy. They should be excised with a wide margin of normal tissue if one would prevent the black pigmented malignant tumors. If they cannot be thus removed, leave them entirely alone. Many pigmented moles have been fired into active malignancy through irritation by sunlight, caustics, ligatures, electric needles, curettages, carbon dioxide snow or partial excision.

Intra-oral Cancers.—If uncleanness, rough teeth, tooth snags, irritating dental appliances, tobacco, betel nuts, buyo leaves, stomatitis and syphilis, with ulcerations and leukoplakias, could be eliminated from the mouth, cancer would become a rare lesion in this location and would be greatly reduced in the esophagus and stomach. The precancerous lesion, like the cancer within the mouth, may be located in the mucous membrane of the cheeks, lips, gums or tongue. In the prevention of intra-oral cancers the dentist must be an ally.

Cancer of the Esophagus.—Excessive heat of ingesta such as soups and tea plays a prominent role. This is especially borne out by the incidence rate of esophageal cancer in women and men of China. The male eats his meal immediately after it is taken from the cooking fire, and has a high cancer rate of this structure. The women who serve the men at the table eat later when the food is cool or cold, and among them cancer of the esophagus is rare. Other predisposing factors are: Esophagitis, leuko-

plakia, ulcers and scars resulting from chemical or thermal burns or syphilis, strong alcoholic drinks, tobacco, oral uncleanness, improper mastication of food, often through the lack of teeth, the use of strong condiments, as mustard, and deficient fluid intake.

Cancer of the Stomach.—In addition to the predisposing conditions enumerated under cancer of the esophagus, prolonged use of strong cathartics, peptic ulcers, constipation and other gastro-intestinal diseases are factors in the production of gastric cancers. From one of the large medical centers has come the statement that from 60 to 70 per cent of chronic gastric ulcers in people of advanced age show microscopic carcinomatous changes. Constipation, ileal stasis, duodenal distention, duodenal and pyloric congestion and pyloric spasm undoubtedly play a part in the production of gastric and duodenal carcinomas.

Cancer of the Gallbladder.—It is doubted that primary carcinoma of this structure ever occurs in the absence of gall stones or a chronic cholecystitis. We have seen a number of primary gallbladder cancers but none without stones being present. Kazama¹² and Leitch,¹³ using human gall stones, produced carcinoma of the gallbladder in guinea pigs, presumably through the exclusive irritant action of these stones.

Cancer of the Breast.—A clinical history of a previously caked breast, cyst or tumor, sore, fissured or inverted nipple, abscess, interrupted nursing, non-use or something abnormal in function, is found in a high percentage of those women who have cancer of this organ. Within the mamma no cyst, stagnation, area of inflammation or lump, even when known to be benign, is a desirable tenant. Certain of these have little tendency to undergo malignancy but why leave a doubt? The removal of all tumors, the correction of chronic mastitis and the prevention of stagnation are to be stressed if one would prevent cancer of this gland.

Carcinomas of the breast develop in from 15 to 20 per cent of the patients having chronic cystic mastitis.¹⁴ The clinical observations of Adair⁵ and the experimental findings of Bagg⁶ confirm the observation of Ewing that normal lactation seems to be more or less of a safeguard against mammary cancer. The incidence of cancer of the breast is a great deal lower among Japanese women who almost universally nurse their young than among English and American women, many of whom avoid the responsibility and privilege of nursing their offspring.

Cancer of the Lung.—Among the predisposing factors which have been incriminated as favoring the development of carcinoma of the respiratory tract are: Sex, chronic irritation,

syphilis and the inhalation of tobacco smoke, atmospheres laden with products of gasoline combustion, incompletely burned carbon as from coal furnaces, particles from tarred roads and chemical substances, particularly arsenic and radium elements. Chronic bronchitis and bronchiectasis are possible factors in some cases of lung cancer. At autopsy I have observed primary lung carcinomas in two cases of nontuberculous pulmonary cavities (Mo. A-29-22 and A-36-10).

Arkin and Wagner,¹⁵ who have just reported a group of 135 cases of primary carcinoma of the lung, found that 90 per cent of these patients were chronic smokers and expressed the belief that the inhalation of tobacco smoke may be an important factor in such cancers. In their series the disease occurred approximately twelve times more often among men than women.

Cancer of the Uterus.—1. Cervix Carcinoma: Lacerations and inflammations incident to childbirth have a definite relation to carcinoma of the cervix. This is shown clinically by the fact that at least 98 per cent of cervical cancers occur in women who have borne children. Chronic inflammation of the cervix with the acrid, irritating discharges that bathe its surface, lacerations with the resultant eversion, erosion, ulceration, infiltration, vascular changes and scar tissue formation, with stenosis of the cervical canal and cystic changes of the glands, are prone to cause cancer. The very low incidence of cancer of the cervix among women who have borne children and who have had their cervixes repaired or removed, as indicated, demonstrates the value of such procedures. A famed gynecologist friend in all sincerity and seriousness has said, "No woman with a cervical or uterine discharge can be my friend or remain my patient."

In a large number of women who have cervical cancer, there is a history of the repeated use over long periods of time of some strong or irritating douche like phenol, lysol or cresol. Such procedures are commonly used to remove or conceal an odor which indicates uncleanness, stagnation of either natural excretions or inflammatory exudate or, only too often, a necrosing carcinoma.

2. Carcinoma of the Corpus: In single women, carcinomas of the body of the uterus occur four times as often as do those of the cervix, and essentially after the menopause. In some cases there have been found an antecedent stagnation or retention of normal excreta, hemorrhage or exudate, or a fibroid tumor encroaching upon the endometrium and causing mechanical disturbances.

Chorionepithelioma of the uterus, a rare tu-

mor, may originate either as an embryonal, totipotent cell displacement, according to the theory of Conheim, or as a tumor associated with pregnancy. It may result from a cystic, vesicular or so-called hydatid mole, or may develop from retained placental tissue following abortion, miscarriage or delivery at full term. Their prevention rests entirely upon emptying the uterus of the products of conception whenever pregnancy terminates.

SUMMARY AND CONCLUSIONS

A review of the etiological factors of cancer strengthens the opinion that for the development of cancer in man and experimental animals three factors are concerned; namely, inherited disposition, chronic irritation or stimulation to cell growth and advanced age. To make practical application of this knowledge, it is obvious that through the avoidance, control and elimination of irritants and stimulations to cell growth lie the hopes and promises of cancer prevention.

Neither the medical profession nor the public has cause to carry on the defeatist attitude relative to cancer that is now prevalent. Consider, if you please, what can be accomplished in prevention alone if we but unleash our interest, enthusiasm and knowledge, the medical dogs of war, against this anarchistic killer.

In general, cancer prophylaxis would require: The prevention of stagnations, the removal of every form of chronic irritation, suppuration and ulceration, emollient treatments or, if need be, protective covering for sensitive, atrophic or fissured areas of skin, the correction of tissue dysfunctions and unusual physiologic disturbances and the establishment of general cleanliness particularly of the oral, gastrointestinal and genital tracts.

Special attention should be given to the following:

1. Skin: Early, complete and wide removal of pigmented growths, and especially those that are elevated and subject to injury.

2. The lips, mouth and tongue: Avoid pipe stems, local irritants as tobacco and the betel nut, abolish uncleanness, remove tooth snags and irritating appliances and prevent or immediately correct leukoplakia.

3. The gastro-intestinal tract: Avoid hot ingesta and the excessive use of condiments; adequately treat gastric ulcers and prevent intestinal stasis.

4. The uterus: Correct stenoses and abnormalities of position and repair, clean up or remove, as indicated, diseased cervixes.

5. The breast: Remove all lumps, cysts, areas of mastitis, prevent stagnation and urge that this organ be used for the purpose intended,

that of lactation and nourishment of the offspring.

It is never too early in life to commence these corrective measures.

With a belief that prevention is far more important than correction or even cure and that many cancers can be prevented, hence are needless, it is held that a concerted move toward cancer prevention is one of our responsibilities. In such a program, four specific means are available:

Teach cancer prevention by (1) a more intensive and practical instruction of medical students on the subject of precancerous conditions, especially in the ways and means of detection and methods of correction; (2) frequent post-graduate reviews for the practitioners of medicine by men interested, qualified and enthusiastic in this promising field.

Preach cancer prevention by participating actively in the efforts to enlighten and instruct members of the profession and the laity in matters pertaining to cancer, especially in the possibilities and importance of its prevention. Stress should be placed on that part which has to do with the detection and limitation of the things that are prone to develop into or stimulate the production of cancer.

Practice cancer prevention by advocating and advising patients of the desirability of regular and stated examinations for the detection of disease processes. With promptness and certainty remove chronic irritants, lesions or appliances and, where stagnation exists, restore proper drainage. When a patient seeks and obtains good advice and proper treatment he or she should be protected from many types of cancer. Do not wait for a disease and certainly not for a cancer to develop in order to demonstrate diagnostic ability and the efficacy of treatment.

Study cancer from the viewpoint of prevention. Group team work including social, clinical and pathological studies under suitable conditions promises much in the field of cancer investigation. The neglect of and the indifference to such studies are detrimental to the further acquisition of knowledge of cancer.

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DETERMINATION OF TYPE OF TREATMENT FOR CANCER FROM PATHOLOGICAL STUDIES

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I wish to present a variety of malignant tumors for illustrating certain points which must be considered by the pathologist in attempting to determine the best method of handling certain specific types of neoplasms.

As to the methods of treatment, we know that a great many tumors will fall into the group which may be treated by either irradiation or surgery. There is a second class which is most effectively treated by surgery alone and a third class in which the best results are obtained from irradiation alone.

The first example of a neoplasm which I have to show is a classical basal cell epithelioma of the skin which is readily destroyed by almost any method, the knife, cautery or irradiation.

This common type of neoplasm of the skin is a relatively benign tumor of slow growth that does not as a rule metastasize to the regional nodes; and, being an undifferentiated neoplasm, it is quite sensitive to irradiation. However, the great importance of microscopical study of such tumors becomes at once obvious when we realize that probably over 10 per cent of basal cell epitheliomas, if carefully sectioned, will show the cellular features of a squamous cell malignancy in certain areas. This type of tumor will require the same amount of irradiation as one made up entirely of atypical prickly cells. Moreover, as an adenocystic type of structure of basal cell tumors becomes manifest the tumor, as a result, becomes more resistant to irradiation. Like-

wise, when a simple ordinarily sensitive type of undifferentiated basal cell malignancy has invaded cartilage or bone it becomes extremely radio resistant.

The squamous cell epitheliomas are radio resistant and require from seven to ten skin erythema doses to destroy them completely. This also holds true for the squamous cell malignancies of the buccal mucous membrane, while if a tumor of similar morphologic structure is located in the oropharynx or nasopharynx there is an increase in their radio-sensitivity. Moreover, as the cell type of these pharyngeal tumors becomes more primitive and they become of the transitional or lympho-epithelioma type they become unusually sensitive to irradiation.

In the floor of the mouth we occasionally see large, fairly well differentiated fungating, vascular epitheliomas which are chiefly surface overgrowths. From cell type alone we would consider them resistant. They are relatively sensitive, probably due to the action of the irradiation on their blood supply rather than on the tumor cell itself.

The next is an undifferentiated tumor which, in spite of its anaplasia, sometimes actually grows while being irradiated. Occasionally the skin metastases of such tumors are found to be sensitive but this is an exception to the rule. These tumors are classified as melanoblastomas and they cannot be destroyed by irradiation in the great majority of cases without irreparable damage to surrounding normal tissues. Here, then, is a primitive cell which is radio resistant and, therefore, an exception to the general rule. It is even more important to remember this tumor and its reaction to irradiation because many investigators are of the opinion that such tumors have a neurogenic origin, and most tumors with such an embryonal background are very radio resistant.

Among other tumors of the skin and mucous membranes are the hemangiomas. Usually these will respond nicely to irradiation; but, as a general rule, as they become larger and more vascular they become more resistant. Moreover, as the patient grows older these tumors tend to become more resistant. In contradistinction to the relatively sensitive hemangioma, the lymphangioma of similar microscopic structure is almost invariably a resistant neoplasm.

Malignant epithelial tumors of the lung never have been cured to my knowledge by irradiation. Nevertheless, such tumors may, after heavy irradiation, undergo temporary regression with considerable symptomatic relief to the patient but they tend to recur in quite resistant form. On the contrary, lympho-

blastomatous neoplasms of the mediastinum are usually sensitive.

Breast tumors form a rather interesting group. Highly cellular, rapidly growing carcinomas of the breast, when subjected to heavy irradiation, may regress rapidly but almost invariably recur. One patient was given irradiation for a massive recurrence after the breast was removed surgically and viable masses of tumor cells were found in the center of the necrotic section. Occasionally, intraductal carcinoma of rather well differentiated character will undergo spontaneous infarction under irradiation probably due more to the action of the rays upon the blood supply than upon the tumor cells.

Treatment of squamous cell carcinoma of the cervix is rapidly coming to be considered the field of the radiologist alone, principally because of the technical difficulties and accompanying high mortality incident to the complete Wertheim operation. Thorough external irradiation prior to insertion of radium, which second procedure is followed later by more deep external irradiation, has greatly increased the percentage of five-year cures. Cancer of the body of the uterus is probably still a surgical problem. However, in the large corpulent patient or in the presence of systemic disease such as cardiac disease, irradiation is often to be preferred. Under these conditions all tumors of this character will undergo regression and often become completely sterilized, not because they are particularly sensitive but because of the enormous amount of irradiation to which such a surface growth is exposed by intracavity radium insertion. However, there are certain cell types in the corpus malignancies which, although relatively sensitive, have given poor ultimate results from treatment.

Myosarcoma of the uterus is quite rare. The local recurrences of these tumors are said to undergo rapid regression at times but pulmonary metastases usually destroy the patient. There have been too few cases reported treated by irradiation, hence we do not know exactly what the reaction of such tumors is. Some of those reported have shown temporary regression but recurrence was the rule.

From the gross and histologic structure of a deciduoma malignum, one would expect it to be quite sensitive; but again, as in the case of the myosarcomas, too few cases have been treated to give us adequate data.

Tumors of the ovary are very interesting. An example is a mucoid carcinoma removed from a girl, aged 20. There was beginning invasion of the omentum. In six months she showed a massive recurrence although she had

received extensive irradiation throughout most of that period. Within a year she died from extensive metastasis. Such is the usual record of these tumors. Often papillary cystomas of the ovary undergo temporary regression under irradiation, but as a general rule ovarian neoplasms, even though sensitive, recur early following primary regression under heavy irradiation. At times ovarian carcinoma however may be rendered operable by preoperative irradiation. An embryonic carcinoma of the ovary (teratoma) was obtained from a girl 16 years of age. She developed an abdominal tumor which grew very rapidly. The primary tumor, which was removed, was about the size of a grapefruit and in six months after the operation the abdominal cavity was filled with a recurrent tumor. These embryonal malignancies are very similar, histologically, to their prototype in the testicle and usually undergo rapid regression under irradiation but as a rule they recur promptly in more resistant form.

The granulosa cell tumors are usually accompanied by marked hyperplasia of the endometrium and are usually not malignant tumors. They will regress, however, under irradiation.

The common tumors of the adult kidney are practically all radioresistant. On rare occasions a bony metastasis from hypernephroma may regress. There is one tumor, however, which occurs in the kidney of infants and young children that fulfills all the cytological requirements of radiosensitivity. This is the so-called "Wilms'" tumor. This child had a prompt recurrence after resection of the tumor but the growth melted under postoperative irradiation in a very spectacular manner. Although this is a fairly characteristic story of this group of tumors, unfortunately they often tend to recur in resistant form. Sometimes a large bulky tumor of this variety may be rendered operable by preoperative irradiation. Certainly an attempt should be made to resect them and this procedure should be followed by postoperative external deep irradiation therapy.

So far we have had rather poor results from external irradiation in tumors of the bladder, although radon seeds or radium needles embedded directly in the tumor have given good results in the smaller growths.

Cancer of the prostate is usually a resistant type of malignancy and requires as much as ten or twelve erythema doses from radium needles directly in the prostate to produce results. I, personally, am not familiar with any cases that have been cured even by this amount of treatment. Prostatic carcinoma metastasizing to bone does not yield the spectacular regressions that we see in metastases from breast carcinoma

under treatment. Sometimes relief from pain is obtained but the remarkable alleviation of symptoms by external irradiation in metastases from cancer of the breast in bone unfortunately does not obtain as a rule in similar metastases from primary prostatic malignancy.

Embryonal carcinomas of the testicle furnish us with one of the signal victories for irradiation treatment in malignancy. Not only has a heretofore hopeless cancer been cured, but the percentage of five-year cures has been raised from 35 to 50 per cent since Ferguson introduced the Aschheim-Zondek test. In doing so he made it possible not only to determine fairly accurately the cell type, but also to detect metastases long before they can be suspected clinically making it possible to sterilize these very early growths.

The adenocarcinoma of the testicle is a sensitive tumor but it usually recurs and the prognosis is not good. Choriocarcinomas are, likewise, sensitive, but they almost invariably recur even after thorough irradiation. Fortunately, choriocarcinoma is rare.

Tumors of the thyroid gland are generally resistant. Even the more embryonal appearing round cell carcinomas are often highly resistant. Occasionally the well differentiated variety is moderately sensitive. One case regressed nicely under external irradiation although the patient is still wearing a tracheotomy tube. She has had no obvious increase in the size of her tumor for almost eighteen months after the initial regression.

The Pepper type of sympathetic nerve tumor arises in the adrenal medulla of children. These tumors are of neurogenic origin, yet they are sensitive to irradiation. This is contrary to what we find in the majority of tumors of nerve origin. Unfortunately neuroblastomas of the adrenal recur usually quite rapidly after regression and destroy the host.

Adenomas of the hypophysis will sometimes recede under irradiation and symptoms will be alleviated. Hypophyseal carcinoma, on the other hand, is almost always resistant to the action of roentgen ray or radium.

Carcinomas of the thymus gland which produce abortive Hassall's bodies are usually resistant neoplasms. In one case a large mediastinal mass underwent apparent complete involution under irradiation and the patient lived for a period of seven years. At the end of that time she died with profound cachexia. At the necropsy only a small amount of tumor invading the lung was found. On the other hand, many of the malignant tumors involving the thymus are radiosensitive growths and to these

belong the Hodgkin's sarcoma and lymphosarcoma groups.

A section of a meningioma with the block taken closely adjacent to the area where radium needles were inserted at operation showed no histologic indication of regression and from the study of the cell type and background of these neoplasms none was anticipated. Occasionally, however, tumors of the glioma group which are hopeless from the surgical standpoint may regress and show alleviation of symptoms from external irradiation, or radium implantation. A malignant glioblastoma multiformi shows rarely if ever more than temporary help by surgical intervention but may be relieved of symptoms for a considerable length of time by irradiation.

Tumors of the joints and tendons are a poorly classified group. Some are sensitive and some are resistant. A section taken from a hemangio-endothelioma of the knee joint serves to illustrate what a wide variety of growths may occur in these regions.

Neurogenic sarcoma, according to Stewart, is probably one of the most common tumors of the soft parts. This entire group is resistant to irradiation. Biopsy of a huge tumor of the thigh in an elderly woman, who was given so much irradiation that there was marked destruction of normal tissues, showed not the slightest evidence of regression and even appeared at times to grow during the period that it was being irradiated.

Giant cell tumors of the bone are usually sensitive and when exposed to relatively small doses of irradiation undergo gradual involution. If the bone shell has been penetrated, or if such tumors recur following thorough curettage, we should suspect malignancy. Moreover, when either of these two events has taken place the tumors tend to become resistant. Giant cell tumors of long standing may also be resistant.

Osteogenic sarcoma is almost always a very radioresistant neoplasm. On the other hand, Ewing's endothelioma of the bone is a sensitive growth. These tumors are often multiple and unfortunately the prognosis is often bad; but they do respond rapidly to irradiation and undergo marked regression. Thus, such a tumor may be held in check and the patient relieved from pain for a considerable length of time.

Hodgkin's disease, which usually is quite sensitive, may become largely hyalinized in the late stages and may be radioresistant.

Chronic lymphatic or myelogenous leukemia is usually a radiosensitive condition. Although we probably do not prolong life by irradiation in such cases, we often make the patient more comfortable and symptomatically and clinically

they improve greatly. The same is true of treatment for lymphosarcoma and probably for myeloma. So far irradiation is the only weapon we have with which to combat this last group of diseases.

COMMENT AND CONCLUSION

The foregoing short resumé with type illustrations serves to show that it is essential to have a great deal more information about tumors than can be learned from a microscopic section alone. The naked eye appearances, the character of the tumor bed, the presence of infection and cachexia, or secondary anemia and the age of the patient are clinical factors of utmost importance. These factors must be carefully evaluated before we can outline any scheme of therapy in any given tumor. Topography is also of major importance and the embryonal background of neoplasms may be of greater moment than the anaplastic features in determining the irradiation response.

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DIAGNOSIS AND TREATMENT OF EARLY CANCER OF THE BREAST

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A half century ago an early diagnosis and a prompt radical operation of cancer of the breast were the chief aims of well-informed surgeons. Now, the definitely reduced mortality notwithstanding, the same objectives lie before a newer surgical profession. It will probably be thus until an effective nonsurgical remedy for the disease has been found.

When a definite and indisputable diagnosis has been made the course of procedure is clearly obvious; but that is not always an easy matter in early cases that give promise of a large percentage of permanent cures. The advanced cases, which present a retracted nipple, attachment to the overlying skin with or without the "orange-peel" surface, enlargement of axillary lymphatic glands and still later manifestations, are readily recognized. These, however, are followed by a high mortality rate whatever treatment may be employed. It behooves us therefore to direct our efforts toward saving a greater number of those for which we pretend to have a remedy.

The presence of one or more tumors is usually but not always determined before a physician is consulted. In either instance it is the doctor's duty to find it if it is there, and that

must be done by "flat-hand" palpation. Any mass that cannot be felt with the palmar surface of one hand is no tumor, solid or cystic, benign or malignant. Other forms of tumefactions cannot readily be felt with the palm of the hand and they also have other distinguishing characteristics.

Multiple tumors appearing simultaneously are seldom cancerous; but when they are noticed successively, particularly when the order runs in the direction of the local lymph stream, it is strongly presumptive of malignancy.

Even if a cyst is large it should not be expected to fluctuate, although that is possible now and then, particularly if an assistant holds the mass firmly between both index fingers while the surgeon elicits the fluctuation. When it is deeply embedded in breast tissue even this procedure is seldom satisfactory.

Transillumination, properly performed, is a great aid in the diagnosis. Max Cutler's water-cooled lamp is a great improvement over earlier methods, yet there is an element of error which is increased when the examination is performed hurriedly or improperly. When the powerful rays pass through a cyst there is usually a greater translucency in that area; but a solid tumor produces a shadow which is naturally smaller than the whole mass and not as clearly circumscribed.

Cysts are malignant in a certain proportion of cases which differ considerably according to the reported statistics from different sources. This kind of conflicting testimony in regard to cysts is comparable to the sometimes conflicting pathological reports when several pathologists have examined the same specimen microscopically. According to my clinical experience this divergence of the individual opinions of pathologists will be minimized or possibly eliminated when the estrogenic influences on mammary tissues are more generally understood and appreciated. The same is true in regard to benign adenomata with "suspicious" or "pre-cancerous" areas. Meanwhile our patients will be compelled to suffer the dire consequences of this transitory chaotic state in scientific progress unless we devise a clinical formula by which the lives of more of our patients will be prolonged.

When there is a solid tumor mass, however small it may be, in continuity with a single or multiple cystic manifestation it should be viewed as gravely significant of malignancy because benign tumors are distinctly different histological entities from cystic development. Their coexistence in the same breast is purely accidental and consequently rare; but a malignant degeneration of any abnormal benign tissue is of more frequent occurrence.

The period of life at which a tumor of the

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breast is first noticed is a most significant point. It seems as if the thirty-fifth birthday of the patient (half the Biblical span of three score years and ten) is the great dividing line between barely possible and highly probable malignancy in solid tumors of the breast. Those which appear before the age of 35 are usually but not always benign. When first discovered in a patient over 35 the chances of it turning out to be a malignant growth are infinitely greater than before that age. The percentage gradually increases from about 65 per cent to 100 per cent until the period of actual senility is reached. In old age there can be little if any doubt of the malignancy in mammary neoplasms when they are merely a clinical entity.

Biopsy with an immediate histological report on a stained frozen section might comply with all the momentary requirements of an anxious dramatic situation and still have its fundamental elements of error. Certain large clinics seem to depend on it as absolutely perfect and it is highly recommended in contemporary surgical literature. Yet it is quite disappointing to a surgeon when a patient returns with an unmistakable recurrence of a cancer some weeks or months after a conservative operation performed upon the favorable report of a pathologist. It is also a calamity when a pathologist changes his opinion after a week or more and informs the surgeon that the specimen which he once thought benign finally turned out to be malignant. In either of these instances the patient is practically doomed because the neoplastic tissue has been stimulated to more rapid growth and the disease has spread too far. This is even true of cancers which are not highly malignant.

The use of roentgen rays in the diagnosis of breast tumors is not popular. Although a few authors have reported encouraging results it has apparently failed in the hands of a great majority of roentgenologists.

Paget's disease of the nipple progresses in a most insidious fashion. There is no clinical manifestation that marks its transition into a malignant condition. Not even the development of a tumor mass can be taken as a significant feature. It is however quite gratifying that the degree of malignancy in this form of cancer is almost always low. If the lesion is still small an ordinary mastectomy might suffice; but when the condition has invaded further into mammary tissue primary radical operation should be performed as the lesion is too frequently distinctly cancerous.

Bleeding nipple rarely occurs before the fortieth year; therefore it distinctly belongs to the "cancer bearing" period of life and must be reckoned with accordingly. It may result from either malignant or benign conditions; but the

exact source of the bleeding is difficult to locate. As in early Paget's disease a simple mastectomy is indicated unless a tumor is present in which case a radical amputation should be performed.

Chronic infections, such as tuberculosis or syphilis, may simulate malignancy but can generally be distinguished from it by going into the more minute details of the history and making a careful physical examination. They are also less frequently found during the years when cancer is most often seen.

Originally benign tumors are generally round and movable in the fat or breast tissue. When they deviate from these characteristics without the influence of the female cyclic changes a considerable percentage of them turn out to be malignant.

There are certain lesions of the breast which can offer a degree of difficulty in arriving at a workable diagnosis. Among these are (1) cysts, particularly if small and deep seated; (2) chronic infections with induration; (3) benign tumors with or without estrogenic stimulation, particularly in women of thirty-five or older; (4) early carcinomata, particularly in relatively young women; (5) duct lesions, usually with bloody or other discharge from the nipple, and (6) acute carcinomata.

Acute carcinoma is a fast spreading lesion and yields so seldom to any form of treatment that many surgeons of experience do not operate but resort to radium and roentgen ray therapy in the hope of prolonging life. Fortunately it is rarely seen.

Our most important problem is the early recognition and proper treatment of cancer in comparatively young women, those in whom dilatory measures and incomplete primary operations greatly increase the mortality rate. For obvious reasons, they are entitled to our best efforts to preserve the life of the largest number of them for the longest period of time; yet we have made less progress in their behalf than in any other class of sufferers from mammary cancer. This is due to the attitude that the presence of a cancer should be a certainty before a radical mastectomy is performed; thereby we are only pursuing the intrusive offender instead of speeding ahead to sever him from the body.

The modern radical operation for cancer of the breast is a mutilating but not a disabling procedure. It is followed by an extremely low operative mortality and a very short postoperative morbidity period. The survivors who are spared to fall victims to some other ailment or injury, suffer little discomfort or inconvenience because of the loss of a breast with the underlying pectoral muscles and the adjacent axillary

and subclavian lymphatic glands. Of course, a prominent secondary sexual organ is sacrificed but its loss can be hidden by appropriate apparel, with or without a comfortable prosthetic device.

As long as the accepted policy remains that the surgeon must be absolutely sure of the presence of a carcinoma before he has the right to perform a radical mamnectomy, the eventual mortality will remain unnecessarily high. It will only be reduced when the rank and file of surgeons become more courageous, by demanding scientific proof of its benignity from every breast tumor instead of assuming the responsibility of proving its malignity before treating it with a radical operation. Then there will be fewer delays and aggravating incomplete operations but more complete recoveries. Perhaps a few breasts that might have been saved will be sacrificed, but it will certainly provide a better chance for those who are actually harboring a cancerous neoplasm. As it now exists the dread of operation often far exceeds the fear of the disease, while a reverse viewpoint would more nearly conform to the accumulated scientific experience of the present day.

A great deal has been said and written on educating the public about cancer. Might it not also be wise to ask internists and general practitioners to pay more attention to the subject? Cancer of the breast is close enough to the surface of the body to be discovered by palpation when it is quite small. More cases ought to be casually discovered by family doctors and clinical diagnosticians during routine physical examinations.

The foregoing statements should not be construed as an effort to belittle the efforts of scientists to make medicine and surgery more nearly exact. Nevertheless, it must always be kept in mind that we are dealing with a living human body, the intricacies of which will probably never be clearly understood. When it is known to harbor a destructive aggregation of foreign cells, that invading element should be extirpated. In this we are agreed, yet we should also have a definite plan of procedure for the doubtful cases. It is the purpose of this paper to provoke more discussion on the practical points of the subject without stressing but not wholly disregarding its purely academic scientific aspects. Therefore I beg to submit the following conclusions:

CONCLUSIONS

1. The presence of a tumor should be decided by "flat-hand palpation."
2. Transillumination should be applied in the effort to decide whether the lesion be solid or cystic.

3. Pain is not an early manifestation in cancer but is oftener observed in small but growing cysts.

4. When the patient discovered a painless solid mass long before or considerably later than her thirty-fifth birthday, it is reasonable to consider it benign in the former instance but probably malignant in the latter.

5. Paget's disease of fairly long standing demands a radical mamnectomy to assure the patient that her chances for a permanent cure are almost certain.

6. Biopsy should be avoided whenever possible, particularly if there will be an interval of time between it and a radical operation. Yet it cannot be discarded altogether for it must be resorted to in certain otherwise bewildering cases.

7. A patient of 35 years or more, with a single or multiple cystic lesion of the breast, will suffer a small loss by a simple mastectomy and not much more by a radical operation.

8. Bleeding nipple warrants a simple amputation, but when a palpable mass can be felt a radical operation is indicated.

9. In doubtful cases every possible effort should be made to make a relatively correct diagnosis before a specimen is obtained at biopsy or more extensive procedure. Then if an uncertainty still exists and a competent pathologist cannot immediately certify that the lesion is benign a radical mamnectomy is demanded forthwith.

10. The study of mammary neoplasms is still in its infancy. Laboratory research must yet contribute much knowledge on this subject before practical surgery can accomplish more. The mortality of this superficially situated variety of malignant growths is still too high and demands the combined cooperative attention of all who often come in touch with it, namely; general practitioners, internists, surgeons and scientific research workers.

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CANCER OF THE RECTUM

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It is generally admitted that cancer presents the greatest single problem which today confronts the medical profession. In the absence of any known specific cause of this disease it is impossible to fight cancer in general. We can only fight each single form of cancer with a degree of success which will be directly proportional to the extent of our knowledge as it attacks each organ, its pathology, its symptomatology and the proper application of the best methods of treatment. It is to be hoped that knowledge about cancer when it is located in readily accessible organs of the body will be so widely disseminated that the pessimistic attitude which is still so prevalent will change to a spirit of optimism.

Cancer of the rectum ranks fifth in the order of frequency in which cancer occurs in various anatomical subdivisions of the body. The rectum is an accessible organ and cancer when located in this region should be curable in a large percentage of cases. Miles, Lockhart-Mumery, Jones and others have published articles which show as high as 52 per cent of operable cases well and free of evidence of the disease five years or more after treatment. More recently, cases successfully treated by roentgen ray or radium, or both, have been reported. Naturally, these results record the successes. But what is the true picture and how shall we arrive at a more generally intelligent understanding of this condition? In order to learn more about the practical difficulties which surround this disease we have recently reviewed 230 cases which have been admitted to the surgical service of the Barnard Free Skin and Cancer Hospital, St. Louis, and have also studied the records of fifty-seven private cases. I desire to place before you the information derived from this study. For the computation of end results thirty-five complete records of patients operated upon before January 1, 1931, are available. The very tedious analysis of these case

histories was done by Drs. George T. Gafney and E. L. Keyes, to whom I am much indebted for their zeal and interest.

Symptomatology.—Unfortunately the very early symptoms of cancer of the rectum are unknown. Cancer, in its beginning, is painless and we must look for symptoms other than pain or profound disturbances in physiology if we are ever to make an "early" diagnosis of cancer. The rectum is from 5 to 7 inches in length, if one includes the anal canal and the rectosigmoidal junction as parts of the rectum, and it may be divided into (a) the anal canal, (b) the ampulla and (c) the rectosigmoidal junction. Cancer attacks all three portions but in approximately two thirds of our cases it is located in the ampulla. The earliest symptom will naturally depend upon the character of the new growth and that portion of the rectum affected. A very small growth located within the grasp of the anal sphincters will naturally make itself known to the patient much more quickly than quite a large growth in the ampulla; and a moderately sized tumor located in the fixed portion of the rectosigmoid may produce a complete obstruction of the bowel long before a similar tumor in the roomy freely movable portion would produce any symptom.

What then are the symptoms which bring the patient to the doctor and should cause the physician to exclude cancer as a possible cause of these symptoms? Unfortunately, except when the growth starts within the anal sphincter region, the early symptoms are so slight that until the lay person is cognizant of their possible importance, the physician will not be consulted. When the mucous membrane of the anal canal is involved, the sharp cutting pain of a fissure or a sense of constant irritation will cause the patient to seek relief. On examination, the physician will find a fissure or an ulcer. These patients must receive a careful digital examination. The slightest impression of induration conveyed by the palpating finger must make the physician think that the patient may have cancer. Once this possibility is recognized, cancer must be excluded as the cause of the symptoms; and it must be excluded just as soon as possible. This will usually necessitate removal of the ulcer or fissure for microscopical examination, which is, incidentally, excellent treatment for most benign lesions of this nature. Hemorrhoids may coexist but their obvious presence must not blind the examining physician to the possibility of cancer.

When cancer is located in the ampulla pain will never be an early symptom. The appearance of blood or mucus in the stool will cause the cancer conscious patient to seek medical opinion. I doubt if even these signs will ap-

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pear before the lesion is 2 centimeters in diameter. I have never seen a patient with cancer of the ampulla of the rectum which was not at least 4 centimeters in diameter, although an alert urologist referred a patient who had a small symptomless sarcoma which he discovered upon rectal examination of the prostate. This emphasizes the importance of making at least digital examination of the rectum an important part of every complete physical examination. If the patient states he has blood or mucus in the stools, again these signs must be satisfactorily explained on a basis other than cancer. If no lesion can be palpated, examination with a proctoscope at least 9 inches long must be done. Should such examination reveal an ulcer or a tumor which has anything but a perfectly smooth covering of mucous membrane, satisfactory material must be obtained for microscopical examination. This is not always easy and if there is strong clinical evidence of cancer a negative report should not be accepted as conclusive until confirmed by two or even three repetitions with biopsy material from different portions of the lesion.

Cancer of the rectosigmoidal junction is perhaps the most difficult of diagnosis. This portion of the bowel is more or less fixed to the sacral promontory, peritoneum and the pelvic genito-urinary organs so that more or less early interference with normal stool evacuation may be expected. Alternating diarrhea and constipation may be the symptom which brings the patient to the doctor. Blood, pus or mucus may have been noticed in the stool. On the other hand, the first sign may be complete bowel obstruction. The rectosigmoid is not an easy portion of the bowel to examine. Under normal conditions a proctoscope can be passed beyond this point. But if any condition is present which interferes with the normal elasticity of the bowel direct exposure of the part by means of the proctoscope may be impossible. This difficulty at once should give rise to strong suspicion of cancer. Roentgen ray examination may show the presence of an obstructing intra-intestinal mass. Such evidence if obtained points strongly to cancer. But even in the presence of some obstruction roentgen ray may fail to demonstrate the presence of tumor. I have explored two cases in which most careful clinical examination failed to demonstrate a tumor yet both of these proved to have carcinoma of the rectosigmoid; both were advanced cases, one totally inoperable. The condition which most commonly simulates cancer both symptomatically and clinically is diverticulitis of the sigmoid. In fact, differentiation may be impossible, even on surgical exploration, because they may coexist.

Pathology.—I shall not attempt any extensive discussion under this heading but try to emphasize only those points in pathology which have a bearing on symptoms and treatment. Cancer has two ways of manifesting itself on all exposed surfaces of the body. It usually begins either as an open sore, which may be an ulcer or a fissure or a wart-like growth. In the anal canal Miles¹ states that carcinoma usually begins in the midline anteriorly, although in the series we have studied the midline posteriorly was more often the starting point. In the ampulla the posterior wall is most frequently involved and at the rectosigmoidal junction carcinoma is seldom seen before it involves the entire circumference of the bowel. Occasionally, in the ampulla, carcinoma is seen at the tip (rarely) or at the base of an otherwise benign polyp. Microscopically, all carcinomata of the rectum are either adenocarcinoma or squamous cell carcinoma. The method of growth and the macroscopical appearance are of great clinical significance. The large, bulky, papilliferous growth is comparatively benign with little tendency toward early metastasis, whereas the deeply ulcerating type irrespective of size will reach the perirectal tissues early and form metastases not only in the neighboring lymph glands but also in the liver. The colloid type which is simply a degenerative change throughout the tissues composing the tumor is usually the most extensive; but mere size of the local tumor mass is no criterion as to its curability.

The routes of extension of carcinoma of the rectum are quite variable. Invasion of the immediately surrounding structures is, of course, possible in all cases though the extent of this invasion can usually be determined with reasonable accuracy by the palpating finger. In the anal canal, the sphincters will first be involved; later, the fat of the ischio-rectal fossa becomes the site of an abscess which, when opened, soon permits the tumor to appear on the skin surface. In the ampulla the growth tends to encircle the bowel. Anteriorly it may invade the prostate, seminal vesicles or bladder before becoming fixed to the sacrum; and in the female, it may be fixed to the posterior vaginal wall and cervix. The rectosigmoidal growths extend to the bladder, uterus, promontory of the sacrum and the peritoneum.

These points of local infiltration, as stated, can frequently be determined by digital examination; but equally important are the routes of spread through the lymphatics. It is not commonly appreciated that the lymphatic drainage of the anal canal is toward the inguinal region and that metastasis to the subinguinal lymph nodes from cancer of the anal canal is of common occurrence. From other portions of the

rectum there are three main lymphatic zones which may be invaded by cancer cells. These are, downward, to the perianal skin, the anal sphincters and the ischio-rectal fat; laterally, along the levator ani muscles and pubic fascia to the important viscera of the pelvis; superiorly, to the lymph channels posterior to the rectum and extending along the middle and superior hemorrhoidal vessels, reaching the entire pelvic mesocolon and from there goes on to the aortic glands. It is a safe axiom that if carcinoma is grossly visible in any one of these groups of lymph nodes on careful microscopical examination it will be found in a more distant location.

Treatment.—Operation, when properly performed, gives the patient suffering from carcinoma of the rectum the best outlook for complete eradication of the disease. Two general types of operation have their staunch advocates; namely, the perineal and the combined or abdominoperineal, performed in either one or two stages. At the Barnard Free Skin and Cancer Hospital we have had rather extensive experience with both general types and have had occasion to test the merits of various technical procedures advocated by numerous surgeons.

My own feeling about the choice of type of operation may be summarized very briefly. The ideal operation for removal of the primary focus and likely lines of spread of cancer of the rectum is the one stage abdominoperineal operation carried out with the complete removal of the pelvic colon (except the few inches necessary to form a left inguinal colostomy), the pelvic mesocolon, the levator ani muscles, and the ischio-rectal fat, the skin about the anus and the rectum. Few patients presenting themselves in either the free clinic or in private practice have sufficient vitality to withstand this very extensive procedure. Our operative mortality in the group was 50 per cent in eight patients thought suitable. Therefore, the next choice is the abdominoperineal operation performed in two stages, the abdominal portion being performed first. It is not advisable to ligate the inferior mesenteric artery in the first stage of this operation since experience has shown that such ligation may result in gangrene of the bowel before the patient is in condition to undergo the perineal operation. Permanent abdominal colostomy is always an integral part of the first stage.

The perineal operation has an important place in the surgery of cancer of the rectum and should be given careful consideration in every case in which the upper limits of the growth can be felt by the palpating finger. This at once limits it to growths in the anal canal and the ampulla. It is truly amazing how much of

the mesocolon and sigmoid can be removed by the perineal route and the analysis of our cases shows it to be far safer than the combined abdominoperineal operation (20.8 per cent in fifty-three cases) so that we feel it is the operation of choice in these low lying cases. In women, I do not hesitate to perform this operation in one stage because I have found the perineal or even the sacral anus satisfactory. The subject of perineal anus will be further discussed under the heading "Colostomy." Naturally, the one stage perineal operation deprives the operator of the opportunity for thorough abdominal exploration for metastasis. From the standpoint of prognosis, this is a serious objection; but since the only real relief from symptoms can be obtained by removal of the growth and the rectum, the presence or absence of metastasis will not determine the rationale of the direct attack upon the primary lesion.

Men do not tolerate a perineal anus and it is my rule in the male patient to precede the perineal operation with an abdominal exploration and colostomy. Should metastasis be found at such a distance that complete eradication of the disease is manifestly impossible, some type of operation which allows the continuity of the gut to be established with preservation of the sphincter ani muscles may be considered. But preservation of the sphincter muscles must not be considered if there is even a remote chance that all the disease is removable. If the anal canal is involved, the patient should have the subinguinal and possibly the iliac lymph nodes removed at a subsequent date. I have lost two cases of this nature from metastasis to these groups of nodes three and four years following the removal of the primary growth.

Colostomy.—Probably the greatest single factor which prevents patients from receiving the fullest benefits of radical surgery for the cure of carcinoma of the rectum is the dread of an artificial anus. Unfortunately, this dread is shared by the medical profession to such an extent that patients are frequently advised against radical surgery on this ground alone. If an artificial anus is such a hindrance to reasonably happy social or business activity, why have not the greatest exponents of surgery stressed the point and devised methods to control this nuisance? In fact, quite the reverse is true. Miles with 587 cases, Jones with over 500, Lockhart-Mummery with 200, and many others stress the simplicity of the care of the abdominal colostomy following removal of the rectum for cancer. Our series of 106 cases leads us to believe that most patients find the artificial anus no hindrance to their usual pre-operative activities. We have tried many different types of operation to facilitate control of

the evacuation of the stool and have been forced to the conclusion that "control," such as is exercised by the anal sphincters, is impossible. However, through regulation of diet, careful attention to warning sensations, proper use of laxatives and in some cases judicious employment of enemas, practically all patients will be able to live unembarrassed by fecal discharge or uncontrolled escape of ill smelling gas. The use of a colostomy bag is optional with the patient. Most patients do not use them.

As might be surmised from the preceding remarks, the type and location of the colostomy has little bearing on the functional result. My preference for the location of the opening is just above the level of the anterior superior spine of the ilium on the left side of the abdomen. The double barrel colostomy is the quickest and safest to perform and if the size of the opening through the abdominal wall has been gauged properly, no fixation sutures are required. A rubber covered glass rod thrust through the mesentery will anchor it until it is fixed by adhesions.

The perineal colostomy has fallen into disrepute and I believe unjustly so. No colostomy will hardly be endurable unless the stools are formed. Formed stools will frequently give some warning just before passing and the pelvis of women is much more sensitive to nerve stimuli than the abdomen. Furthermore, if protective dressings are desirable, women are accustomed to perineal pads which do not interfere with the fashion in dress. In case of accidental soiling, it is not necessary for her to disrobe entirely in order to remove the offending material. But experience will speak louder than words. I have constructed a perineal or sacral anus in fourteen cases in this series and shall continue to do so in women for whom the one stage perineal operation for removal of cancer of the rectum is indicated until I have convincing proof that these patients would be happier with an abdominal colostomy.

Palliative Measures.—In this combined series of 287 cases, palliative measures have been attempted in seventy-eight cases. These measures have been colostomy, radiation by radium or roentgen ray, or both, electrocoagulation, and cautery destruction of extensive anal lesions.

Colostomy is indicated as a palliative measure in two types of cases. Obviously, when there is complete obstruction colostomy must be performed if the patient is to live. The other type in which colostomy alleviates the patient's misery is the anal carcinoma which has destroyed sphincteric control. These patients are truly pitiable, made so by a constant discharge of blood, pus and feces and constant pain. Colostomy, by diverting the fecal stream, will

relieve these patients of at least a part of their burden. It is often well worth while in these unfortunate cases to add thorough soldering iron destruction of the anal growth as an adjunct to the colostomy. Colostomy is never indicated as a palliative procedure for growths in the ampulla. Diversion of the fecal stream does not relieve the patient of his greatest annoyance, namely, the constant desire to evacuate the rectum, and bloody mucus will continue to be passed as long as the growth remains. For this type of case we have made every effort through radiation and electrocoagulation to relieve the symptoms. So far, our efforts have not met with great success. The adenocarcinomata as a group are known to be radio-resistant and radiation must be carried nearly to the point of destruction of normal tissues before an appreciable effect upon the cancer can be expected. In two cases of squamous cell carcinoma about the anus, however, I have felt that radon in gold "seeds" has given worth while relief. Schreiner,² Binkley³ and others have reported isolated "cures" of cancer of the rectum following the use of radium and roentgen ray or both. But there is little if any warning of the increased misery to patients who were over-radiated, or who failed to respond favorably. Early in my experience with radium I was impressed by the increasing tenesmus which made life unendurable to one patient and I saw another patient go insane from pain due to a radium slough. The patient was relieved only after a series of major operative procedures.

Electrocoagulation: Recently a patient 68 years of age was referred who had a comparatively early carcinoma of the ampulla. Its upper limits were approximately five inches from the anal margin and it was located upon the anterolateral wall. The patient refused radical operation because the referring physician stated I would treat him with radium. This I refused to do. We compromised upon the use of electrocoagulation. The growth was not over 5 by 4 centimeters and it could be plainly visualized through a hard rubber proctoscope. Using a ball electrode and fully cognizant of the danger of perforating the bowel, I did as careful an operation as I was able to do and at the same time make an honest effort to destroy the cancer. The result was disastrous. The patient was able to be taken home at the end of a week but died of peritonitis two weeks later. I have attempted electrosurgery with the high frequency current on other cases but have obtained only meager palliative results. It is conceivable that a polyp which has undergone carcinomatous change might be cured by this method. However, once a growth has pene-

trated the submucosa it is exceedingly difficult if not impossible so to gauge the destructive force of the treatment that the cancer will be destroyed without penetrating the wall of the bowel. For real palliation, I much prefer the abdominal colostomy with soldering iron removal or destruction of the offending mass by direct vision through the perineum.

In concluding these remarks on palliation, let me cite two cases of incomplete operation; incomplete, in as much as it was recognized at the time of operation that all the infiltrating tumor was not removed. Each patient received a large dosage of heavily screened radium element placed in the perineal wound against the tissues known to be involved by cancer. One when last heard from fourteen years after operation was alive with no evidence of his disease. The other has survived a little over a year, is working and looks well.

SUMMARY

Certain broad principles governing the diagnosis of cancer of the rectum and treatment based on a study of 287 cases are discussed. Of thirty-five patients operated upon before 1931 ten are known to have lived five years or more following first consultation. Some of the remainder might have lived had they accepted sound advice. Many of the others certainly would have lived had the patient or the first examining physician properly appreciated the significance of blood in the stools! Early favorable cases have at least a 50 per cent chance for cure; the operative treatment in these cases does not carry with it a too high immediate mortality rate, and colostomy, or artificial anus, seldom prevents the patient from resuming his usual business or social activities. A more favorable outlook for this very grave disease can easily be obtained by a wider dissemination of knowledge to the laity about the possible significance of the early signs of cancer, by the more general use of the proctoscope by the physician and by a mastery of various types of operation by the surgeon who assumes the grave responsibility of treating cancer of the rectum.

Metropolitan Building.

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Robert Crawford Robertson, Chattanooga, Tenn. (*Joural A. M. A.*, Oct. 10, 1936), states that acute hematogenous osteomyelitis must be considered when pyrexia and localized pain on bone pressure coexist in the absence of an obvious cause. The majority of the best results were obtained by drainage of the bone within one week following the onset.

MANAGEMENT OF THE LYMPHATIC AREAS TRIBUTARY TO ORAL CANCER

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At the present time the main point of contention in the treatment of epithelioma in and about the oral region is what to do with the regional lymphatics; this is especially true in carcinoma of the lip. For the past twenty-five years the removal of the immediate tributary lymph nodes en bloc whether or not the nodes were palpable has been the method of treatment in most surgical clinics. But recently certain workers have adopted what they call a more conservative method of handling the tributary lymphatic areas. They argue that in cancer of this region, and in lip cancer especially, a large proportion of cases seen without metastasis will remain free and that it is not justifiable to subject all patients routinely to a major operation for the purpose of removing the tributary lymphatics before they are clinically involved.

Pertinent to a discussion of the management of lymphatic areas tributary to oral cancer is a knowledge of the method by which the glands do or do not become involved. At present it is generally agreed that emboli of cancer cells are carried to lymphatic glands and are there held up where they again take on unrestrained growth characteristics.

The opinion that buccal carcinoma metastasizes principally by cell emboli, not by permeation, is supported by three lines of reasoning: First, microscopic sections between the site of the lesion and the glands do not show evidence of invasion; second, first involvement of a node may be more distant than the nearest connecting one, third, the nodes may be invaded when the local lesion is still very early and small.

The submental, the submaxillary, the superior deep cervical and inferior deep cervical are the main tributary groups of nodes which need consideration. The infrahyoid node, the buccal node, a node lying near the lower end of the anterior belly of the omohyoid muscle, a few nodes between the hyoglossus muscle and a node superior to the mylohyoid muscle are other nodes of some importance.

For purposes of discussion, one may consider the treatment of the regional glands of the neck under three headings depending on the stages of the disease, viz.: (a) When the glands are not palpable; (b) when the glands are palpable

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but not fixed, (c) when the malignant cells have evidently broken through the gland capsule or the metastasis is bilateral.

WHEN THE GLANDS ARE NOT PALPABLE

Those adopting the so-called conservative attitude, treat the local lesion, irradiate the neck by one type or another of external irradiation and await developments as to the glands while attempting to keep the patient under observation. When palpable nodes develop a bloc dissection of the neck is performed. This group has maintained that up to a certain point the lymph nodes perform a conservative function and tend to limit the growth of malignant cells, a conception which has, however, never been proved. They advance the argument that the disease can be dealt with as efficiently when a gland becomes palpable as before it has become palpable. Moreover, they assume that the patient can be followed for a period of several years—sometimes an unattainable ideal. This school maintains also that it is the exception rather than the rule to cure any patient with malignant cervical glands. They recommend that prophylactic irradiation be the routine when the glands are not palpable. They point to the number of operations that may be done uselessly, minimize the difficulty of following the patient for a number of years, do not stress the number of deaths due to enlarged nodes getting beyond control while a procrastinating régime is being pursued.

On the other hand, another group, and the one which I favor, has been unable to accept this newer conception and still advocates in most instances of unilateral radioresistant squamous cell carcinoma a bloc dissection of the area of the neck most likely to be involved, sometimes at the time of the destruction of the local lesion but more often after elapse of a varying period of time sufficient for the patient to recover largely from the therapy applied to the local lesion.

The facts necessary to settle this dispute are difficult to obtain. Groups of statistics on the percentage of metastasis that eventually appears after the local lesion is healed vary, as would be expected. The rate of growth, the character of the growth, the extent of the growth, and the anatomical location, all have a bearing on the likelihood of metastasis eventually appearing in the neck. Even if we had exact and accurate statistics concerning the percentage of healed local lesions for a given region that eventually developed metastatic carcinoma, taking all patients as they come, the question of individualization of patients would enter. It is reasonable to expect the likelihood of metastasis in early

relatively quiescent local lesions to be much less than in more active and more advanced local lesions. Clinical observation has always borne out this assumption.

Some discussion of the value of prophylactic irradiation, if one advocates not performing a neck dissection until palpable nodes appear, is pertinent. According to present conceptions, prophylactic external irradiation is insufficient to be lethal for relatively adult squamous cell epithelioma. In so far as a permanent cure is concerned, it is most likely that a sublethal dose of irradiation will not produce an appreciable effect upon the ultimate recurrence rate. However, although we have little definite proof, prophylactic external irradiation probably produces changes which tend to slow up the growth of epithelioma after it has reached the lymph nodes. As advantageous as an impediment to growth may be, such is considerably different from a cure.

We have no clinical method of course of knowing whether or not the lymph nodes are microscopically involved. For a given lesion we can only go on probability. A node is involved with cancer cells for an indefinite period of time, depending upon the type of the original lesion, before it becomes clinically palpable. Among the evidence that might guide one is the statistics of the number of patients with a given type of lesion in a given location in which the local lesion is healed and no palpable nodes are present, but in whom eventually neck metastasis develops. There is at present a considerable amount of clinical experience and statistical data available to give a general idea based on probabilities. The only difficulty with this line of reasoning is that when one gets the probabilities for the group down to a fair degree of accuracy, in a given case, he may be wrong.

One is warranted in individualizing to a certain extent. When the chances are good that metastasis will not occur and it is certain that the patient can be followed, one is probably correct in following a conservative course. On the other hand, if the chances are relatively high that metastasis will appear and the chances of following the case often enough are poor, one would be justified in adopting a more radical method of procedure.

Percentage Who Develop Palpable Nodes During Treatment of the Local Lesion.—A point of interest is the number of cases that do eventually show metastasis after the local lesion is obliterated in a given region.

Duffy (1927) studied the 1917 to 1924 series of cases at the Memorial Hospital. All cases were observed at least two years. In the case

of carcinoma of the lip, at least, this is too short a period; but in some of the other situations it is of more significance. Of 233 cases of lip carcinoma without palpable nodes, 210 or 90.1 per cent showed no nodes throughout the period of observation; thirty-nine or 18.6 per cent developed nodes that proved to be inflammatory on section; twenty-three or 8.5 per cent developed regional metastasis after admission. Of 194 cases of carcinoma of the tongue, admitted free of metastasis, 117 or 60.3 per cent did not develop nodes throughout; thirty-three or 28.2 per cent developed inflammatory nodes and seventy-seven or 28.7 per cent developed metastasis after admission. Although such data tell one something in a certain sense, in another sense they do not because nothing specific concerning the type of the local lesion is given. Duffy's figures of all locations in the region are as follows:

Table 1. Locations of Metastases

Primary	Cases Admitted With No Nodes	No Nodes Throughout	Per Cent of Cases With No Nodes on Entrance and Did Not Show Nodes Throughout
Lip	233	210	90.1
Tongue	194	117	60.3
Floor of mouth	77	54	70.1
Inferior maxilla	65	55	84.6
Superior maxilla	54	45	84.3
Hard palate	26	24	92.3
Soft palate	26	20	77.
Buccal mucosa	74	59	79.7
Tonsil	56	40	71.4
Antrum	54	46	85.2
Larynx intrinsic	77	73	94.8
Larynx extrinsic	47	43	91.5
Total	983	786	79.95

If Duffy's figures may be taken as correct it would appear that on an average all patients as they come and go with carcinoma in or about the buccal region undergoing treatment for the local lesion and without palpable nodes in the neck, have from 10 per cent chance with carcinoma of the lip to 30 per cent chance with carcinoma of the tongue of developing metastasis, after the local lesion is healed. However, in a given case of carcinoma of the lip with a rather well developed local lesion, the individual's chance of eventually developing metastasis might be as high as 30 per cent, or a similar carcinoma of the tongue as high as 60 per cent. On the other hand, a small lower grade carcinoma of the lip might have practically no chance of eventually showing metastasis. In the latter case, the same to a lesser extent may be said of a small early carcinoma of the tongue.

Percentage of Bilateral Metastasis.—Another feature of Duffy's paper worthy of our perusal is the number of bilateral metastases. They are as follows:

Table 2. Bilateral Metastases

	Same Side	Opposite Side	Both Sides
Lip	40	3	9
Floor of mouth	42	2	24
Inferior maxilla	21	2	5
Superior maxilla	12	0	3
Hard palate	3	2	2
Soft palate	4	0	7 (14 cases)
Tonsillar region	68	6	5
Antrum	13	0	4
Larynx (int. and ext.)	48	1	22

The percentage of bilateral metastasis is interesting as showing the percentage of chance of a unilateral neck dissection being of no value in the various locations enumerated.

Results of Excision of Lymph Nodes After Involvement.—The chance that a block neck dissection has of eliminating the lymphatic involvement if it is present is very pertinent.

Blair has twenty out of seventy-four (27 per cent) known involvement of the cervical lymph nodes by squamous cell epithelioma well five to seventeen years after excision en bloc (Fischel). Simmons in forty-eight cases undergoing radical operation has twenty-three in which the gland proved to show cancer; 17 per cent of these lived five years. Fischel recently presented a series of cases of intraoral cancer (112 cases) with 70 per cent of the cases (including those with nonpalpable nodes showing carcinoma proved by the microscope in the lymph nodes). Neck dissections were done on all patients. He had ten patients without palpable nodes seven of whom showed carcinoma on microscopic examination after neck dissection; 33 per cent of these lived five years or more. Of the remainder with palpable nodes and microscopically positive 13.8 per cent lived five years or more. In metastasis from carcinoma of the lip the percentage of nonrecurrence is greater than for intraoral cancer.

Value of External Irradiation of Lymphatic Areas.—As to prophylactic external irradiation, the following observations by Shreiner and Mattick are interesting as bearing upon the likelihood of its being of value.

Shreiner and Mattick present some interesting statistics of nonpalpable lymph nodes treated by irradiation. They divide their cases into small local lesions and large local lesions. In half of each group no irradiation was given to the lymphatic areas; in the other half intensive prophylactic irradiation was given. They obtained exactly the same percentage of five year cures in the group where the lesions were only treated locally as in the group where the neck was also irradiated; namely, about 85 per cent small local lesion group cure and 58 per cent cure in the large local lesion group.

Clinical Diagnosis of Palpable Glands.—Most observers have concluded that there is a rather high percentage of inaccuracy both ways in trying to distinguish whether a palpable node in the neck is involved by cancer or is enlarged by inflammatory products. For example, Simmons in twenty-two cases of gland palpable clinically found that twelve proved to be cancer and ten proved not to be. In twenty cases with no glands palpable seven proved to be cancer and thirteen proved not to be cancer when examined microscopically. Lund in thirty-two small gland cases found that sixteen proved to be cancer and seventeen proved not to be. Fischel in 112 cases had only ten of these showing nonpalpable nodes and seven of these proved to be involved with carcinoma. Twenty-four of the 112 had palpable glands but did not prove to be involved with cancer on excision.

Microscopic Grading of the Local Lesion.—Although all observers are not agreed, the majority I believe admit that the likelihood of group four (Broders) being successfully treated by radical bloc dissection is quite small. For example, Simmons (Group 4) in fifteen cases had no cures. Most students of the question agree that in lympho-epithelioma and transitional cell and the various radiosensitive types of epidermoid carcinoma, practically no good results are shown after neck dissection. On the other hand, for the time being at least, irradiation affects such types very favorably, and theoretically a sufficient dosage can be given to be lethal for metastatic tumor cells. But if the surgeon is going to place some reliance upon the cellular type and microscopic grading in so far as treatment is concerned, the pathologist must be experienced enough in the study of this type of tumor to be able to make an estimate with a fair degree of accuracy.

The Size or State of Advancement of the Local Lesion.—Besides the microscopic grading of the local lesion its size and state of advancement are important in the consideration of whether or not a neck dissection is indicated. All series of cases will vary according to the size of the local lesion. For example, in carcinoma of the lip treated surgically with routine neck dissections performed, Kennedy (147 cases) found that 88 per cent of the patients with lesions up to 1.5 cm. were alive and well, 67 per cent of those with lesions between 1.5 cm. and 3 cm. and 44 per cent of those with lesions over 3 cm. in size.

No valuable statistics can be presented to compare the size of the local lesion and its state of advancement with the increased percentage of lymphatic metastasis which eventually appears. But no observer with any great experi-

ence would deny that the chances of metastasis even if the glands are not palpable, increase proportionately as the state of advancement of the local lesion increases.

Mortality of Neck Dissection.—The mortality of a neck dissection alone carried out under local anesthesia should not be over 2 per cent or 3 per cent in this class of patients and in selected cases it should be lower than this.

The submaxillary dissection used in lip carcinoma will run a lower mortality percentage than the complete unilateral bloc dissection. However, as cancer is a 100 per cent deadly disease, I do not believe one should select his case with an eye on his mortality statistics. In a group of cases where some chance of cure is offered one is justified in taking a chance if it is not too much of a forlorn hope. The mortality depends to a considerable degree upon the time when the neck dissection is done. When one attempts to do the neck dissection at the time of excision of the local lesion, or before the patient is in fair condition after treatment of the local lesion, the mortality will be raised. In the feeble and very old if one leans toward the conservative side somewhat, the mortality tables for any group of cases will appear better.

Conclusion in Regard to Nonpalpable Nodes.—Finally, after sifting all the evidence, one can say, I believe, that although the number of patients without palpable nodes in the neck who will show metastasis after the local lesion is healed is smaller than once was thought, and although the percentage of cures after removal of carcinomatous glands is somewhat less than has been stated at times in the past, and considering that prophylactic irradiation in the metastatic adult squamous cell carcinoma is as yet not of proven value, along with the well known 100 per cent fatal result of uncontrolled metastasis, one is not warranted in routinely adopting a procrastinating régime. Such a régime can only be justified where the chances of metastasis are slight, or where the type of local lesion suggests that the lesion is radiosensitive. Whether or not one has the patient under the most careful type of observation and control is also an important item. When one heals the local lesion only and then allows the patient to get out from under strict observation, he has done the patient a much greater injustice than if he did a neck dissection which raised his chances of a cure from 10 per cent to 20 per cent, according to the location and type of the lesion, with a risk of only 2 per cent or 3 per cent on the operation.

A logical position for one to take might be designated as a "three quarter way" position from routine neck dissection on nonpalpable

nodes. From routine neck dissection in adult squamous cell epidermoid carcinoma it eliminates, on the one hand, the early small lesions with adult cellular characteristics and, on the other hand, certain rapidly growing pleomorphic anaplastic lesions which have been shown to be affected somewhat favorably by irradiation methods, and unfavorably by surgical excision. This position also takes into consideration whether or not the patient will present himself for competent observation over a period of years, whether or not the patient is intelligent, and whether or not he is handicapped because of distance, economic factors or non-cooperation.

WHEN THE NODES ARE PALPABLY ENLARGED BUT
FREELY MOVABLE

When the lymph nodes are palpably enlarged but freely movable most workers are agreed that the method of choice is bloc dissection, unless growth is thought to be clinically, or can be diagnosed microscopically, or shown by the therapeutic test to be radiosensitive. Then excision of the glands is not justifiable. But otherwise bloc dissection is the method of choice.

Some conservative workers take the stand that the grade of the primary lesion in the buccal cavity should not influence for or against neck dissection. Unless the work of Broders and Ewing is entirely incorrect in regard to radiosensitivity, this stand is not correct. The radiosensitive types, by a combination of clinical and microscopic study, usually can be distinguished and in the radiosensitive types bloc dissection is probably of little or no value.

After bloc dissection it may be advisable to lay radium in areas where one suspects that carcinomatous cells might remain. Preoperative irradiation of the enlarged nodes has only one argument in its favor; namely, that viable carcinoma cells are possibly not as likely to be implanted when the neck dissection is done as otherwise. Preoperative irradiation to an extent bordering on a theoretical lethal dose causes a fibrosis which makes a node dissection almost an impossibility. Although postoperative irradiation has not been proven to be of value it is often given after removal of the enlarged nodes; at least no one argues that it does harm when properly given. It may save a few cases or prolong life in other instances.

WHEN THE MALIGNANT CELLS HAVE EVIDENTLY
PENETRATED THE CAPSULE OF THE GLAND OR
THE METASTASIS IS BELATED

When the Capsule of the Lymph Node Is Perforated.—Some workers have laid down the

criterion that when there is evidence of perforation of the capsule of the lymph node, neck dissection is a useless procedure. This is not entirely true. It must be admitted that as soon as the capsule of the gland is perforated the chances of a cure have greatly diminished but they are not entirely gone. Whether or not a neck dissection will offer anything depends upon the type of tumor and to what it is affixed. When the metastatic mass is free from the carotid artery and has not involved bone to any great extent, beyond the possibility of complete destruction or excision of all the bone likely to be invaded by cancer cells, a neck dissection may still offer the patient more than interstitial irradiation can do, both by way of a small chance of a cure and by palliation. The mere fact that carcinomatous cells have perforated the capsule of the lymph nodes is not entirely the criterion for judging the limits of operability by neck dissection.

For those more advanced examples in which the carcinomatous glands are fixed to the carotid arteries, have involved bone not possible to remove, or widely invaded the soft tissues, interstitial radiation plus heavy external irradiation offers a certain amount of palliation. It is the preferable way of handling this distressing and all too common situation, and when accuracy of application is desired it may be wise to expose the glandular areas surgically and under direct vision apply the radium interstitially. The rather peculiar conception, which has also some advocates, of picking out isolated glands to insert foci of radium into, seems far fetched. It suggests the needle in the hay stack aphorism.

Bilateral Glands.—Bilaterally enlarged glands are not always hopeless, although usually so. We believe that here again the location and the type of the original lesion must be considered in the decision. In the more radioresistant lesions which may offer some chance when approached by bilateral operative measures, we see no reason to condemn the patient to the group listed for mere palliation until it is proved that he belongs to that category. When the original local lesion is located posteriorly in the pharyngeal or posterior buccal region, a location which tends to develop a more radiosensitive type and bilateral glands are palpable, intensive irradiation is to be preferred because operation offers practically nothing. But in epitheliomas derived from the lip especially, and sometimes from regions in the anterior buccal cavity, bilateral gland removal may give the patient the only chance he has.

Thus, we believe that in this group a medium radical attitude toward the metastatic glands should be pursued, making exceptions when the

pathology of the region seems to indicate that the possibilities of irradiation are likely to be more satisfactory.

CONCLUSION

The evidence has not yet been produced to warrant a complete change of procedure in regard to handling the cervical lymph nodes. One goes far enough when all attempts are made to select relatively radiosensitive metastatic lesions by clinical means and microscopic means from relatively radioresistant lesions. Many workers state that this cannot be done. But we believe that within broad limits some selection is possible and wise.

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THE PHYSICIAN'S PLACE IN THE HEALTH PROGRAM

W. W. Bauer, Chicago (*Journal A. M. A.*, Aug. 15, 1936), shows that the place of the physician in a community health program must be a central one. Public health relies in the last analysis on medical science. It is true other sciences are called on and that nurses,

statisticians, educators, administrators and engineers make their contributions to a program of public health, but without the correlation furnished by medicine, progress toward better health would not ensue. A successful program toward better health demands idealism, but it must also be a practical movement. The feet of the workers must be firmly planted on solid ground. The experience of the physician with the complexities of the human organism and the endless complications involved in its relationship to the environmental cause him to develop a spirit of conservatism and caution. The conservatism of the profession makes it an easy mark for lampoons by the thoughtless or the unscrupulous, but this very conservatism can be a valuable balance wheel which will help to keep the practices of public health within the bounds of scientific accuracy. Idealism and practical experience require opportunity for expression. No one in the community has a greater opportunity than has the physician. The medical profession as a whole has always accepted its obligations toward the public in a spirit of idealism tempered by experience. Public health, in common with all other branches of medicine, rests on research. Without research there is no progress. The medical profession, individually and collectively, has always been in the forefront of research. The existence of the Scientific Assembly and the Scientific Exhibit of the American Medical Association are in themselves powerful stimuli to research. *The Journal of the American Medical Association* and the eight special journals offer opportunity for the publication of significant contributions. The Association itself makes grants in support of research. Significant contributions to research are made by representative members and Fellows of the Association and their allied workers through research laboratories in medical schools, governmental establishments and other institutions. Organized medicine has not only encouraged and participated in research but has defended it against the villainous attacks of the antivivisectionists, who deck themselves in furs and feathers while they shudder at the thought of stimulating the muscle of a dead frog with an electric current. Legislation intended to cripple medical research has been fought in the Congress of the United States and in the several state legislatures by research workers and medical societies. The influence of organized medicine has consistently been exerted in defense of an apathetic public which has not yet realized how its security is threatened by a small noisy group of fanatics. The physician knows community health needs in a peculiarly intimate manner possible only to physicians and the clergy. The physician must have a central place in the public health program because he commands public confidence. Another field in which the physician can make great contributions, has made them and continues to make them, is health education. Since the very beginning of medical practice, it has been the habit of physicians to advise their patients not only about treatment but about prevention. This has been a person to person relationship, and this relationship will continue to be necessary in our attacks on the great health problems of today; namely, cancer, apoplexy, kidney disease, syphilis, diabetes, heart disease and the evils of self diagnosis, self medication and the nostrum racket. The fight against quackery has been prosecuted with more vigor and success by the medical profession than any other agency. The picture painted is not a completed canvas. Not every physician measures up to the ideals that have here been pictured, but the profession, as a whole, may fairly be said to have done so.

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NOVEMBER, 1936

EDITORIALS

SECOND REFRESHER COURSE IN OBSTETRICS AND PEDIATRICS

The first series of the refresher lectures given by the State Board of Health as a portion of the work in maternal and child welfare under the Social Security Administration was concluded late in September. Work in obstetrics was presented by Dr. Paul F. Fletcher, St. Louis, a graduate of St. Louis University School of Medicine, and work in pediatrics was given by Dr. Oscar F. Bradford, Kansas City, a graduate of Missouri University School of Medicine.

Enthusiastic comments have been received on both courses by the State Board of Health and the Committee on Maternal Welfare of the Missouri State Medical Association, which co-operated in presenting these refresher courses. The course in obstetrics was given in Councilor Districts 21, 22, 23, 24 and 25. The course in pediatrics was given in Councilor Districts 12, 1, 3, 4 and 11.

The second series of lectures began October 12 in Councilor Districts 8, 9, 19 and 26 for obstetrics and 14, 15, 16, 17 and 18 for pediatrics. Lectures are presented once a week at a central point in the district, the lecturers presenting the same lecture on consecutive evenings in the different districts. In this way it is possible for a physician to attend a lecture which he has missed in his own district by going to another district on another evening of the same week.

OBSTETRICS

Councilor District 8 (Lincoln and Pike counties only)—Mondays.

Troy, Dr. H. S. Harris' Office, Monday, October 12, 19, 26; November 2.

Louisiana, Pike County Hospital, Monday, November 9, 16, 30; December 7.

Councilor District 9 (Audrain, Boone, Howard, Callaway, Montgomery and Cooper counties)—Tuesdays.

Columbia, McAlester Hall, Tuesday, October 13, 20, 27; November 3, 10, 17; December 1, 8.

Councilor District 19 (Cole, Osage, Maries and Gasconade)—Wednesdays.

Jefferson City, St. Mary's Hospital, Wednesday, October 14, 21, 28; November 4, 11, 18; December 2, 9.

Councilor District 26 (Crawford, Phelps, Pulaski, Laclede and Dent counties)—Thursdays.

Rolla, Rolla Hospital, Thursday, October 15, 22, 29; November 12, 19; December 3, 10.

Councilor District 8 (St. Charles, Franklin and Warren counties only)—Fridays.

St. Charles, St. Joseph's Hospital, Friday, October 16, 23, 30; November 6.

Washington, St. Francis Hospital, Friday, November 13, 20; December 4, 11.

PEDIATRICS

Councilor District 14 (Lafayette and Saline counties)—Mondays.

Marshall, Fitzgibbon Hospital, Monday, October 12, 19, 26; November 2.

Higginsville, Monday, November 9, 16, 30; December 7.

Councilor District 15 (Cass and Johnson counties)—Tuesdays.

Holden, Legion Hall, Tuesday, October 13, 20, 27; November 3, 10, 17; December 1, 8.

Councilor District 16 (Bates, Vernon, Cedar and Dade counties)—Wednesdays.

Nevada, State Hospital, Wednesday, October 14, 21, 28; November 4, 11, 18; December 2, 9.

Councilor District 17 (Pettis, Henry, Benton and St. Clair counties)—Thursdays.

Sedalia, Bothwell Hospital, Thursday, October 15, 22, 29; November 5, 12, 19; December 3, 10.

Councilor District 18 (Miller, Moniteau, Morgan and Camden counties)—Fridays.

Eldon, City Hall, Friday, October 16, 23, 30; November 6.

California, Latham Hospital, Friday, November 13, 20; December 4, 11.

These courses were carefully planned to give the best possible information to the general practitioner and it is evident, after the comple-

tion of the first series, that many physicians are benefiting from these refresher courses; members are urged to avail themselves of this opportunity. Members in each district will have opportunity to attend lectures in both subjects at some time during the year.

PUBLICIZE SYPHILIS

Civilization has risen as ignorance has been dispelled. Disease has been conquered as knowledge of it has spread. Health standards improve in proportion to the number of people who have been taught the desirable attributes of health which they should cultivate for themselves.

Of all the means available for these various purposes the most potent, if not the only potent one, is publicity; the widespread distribution of pertinent information. Widespread publicity, dissemination of the news of vaccination against smallpox and of inoculation against diphtheria have measurably reduced the incidence of these scourges. But the communicable disease problem has not been solved with the eradication of the contagious diseases of children. There is a contagious disease of adult life far more costly in its effect, far more devastating, far more terrible than any epidemic of infantile paralysis. It is allowed to flourish, the industry which contributes to its spread is unmolested, the ignorance which leads to its development is not combated. All because it is not nice to talk about the pestilence of syphilis.

Surely the changing attitude toward subjects permissible to drawing room conversation, the more general appreciation of the unpleasant features of life, the more general acceptance of the fact that disagreeable practices exist; all these should lead to a general recognition of the plague of syphilis for what it is. No longer need the dreadful word be uttered in muted tones. No longer should the victim of the disease be shunned as a loathsome creature. No longer need we keep still about it. We must shout about it, not boastingly, but that the proper persons may be informed. We need to give publicity to syphilis and to all the social and physical and economic consequences of its being.

This requirement of a new attitude is all the more necessary when the possibilities of complete cure are realized, when the perfection of the modern therapeutic technic is recalled. But to prevent the annual entry of thousands of hopelessly insane into our asylums, to prevent nearly 20 per cent of all the cases of heart disease, to prevent the toll of miscarriages and stillbirths and congenitally infected children, to

prevent all these things we must spread knowledge of the disease. We must make people syphilis conscious just as they are now tuberculosis conscious and diphtheria conscious and smallpox conscious. We must make them come to the physician and ask for a Wassermann test just as they now ask for a roentgen ray examination or a blood count or a urine test.

The reason the public has become conscious of these other disease entities is at once apparent. Newspapers and magazines and radio speakers have brought all of them and a host of other ills acutely to their notice. Witness the present publicity, three or four newspaper columns a week, about the infantile paralysis epidemic in the neighboring State of Illinois. But not one word about the scourge of syphilis which is annually costing the taxpayers of that state hundreds of thousands of dollars for the support of the syphilitic insane in their state institutions. Pictures of the unfortunate victims of infantile paralysis receiving blood transfusions but not one illustration of a congenitally affected syphilitic child receiving an injection of salvarsan. Why? Because syphilis is taboo. It must not be spoken of; it is not nice.

But it must be spoken of. It must be brought just as much into the public consciousness as infantile paralysis or tuberculosis or watered milk. It transcends all these in importance. Realizing the beneficent motives of the public press and well aware of its power for good the Missouri State Medical Association calls upon it to use the word "syphilis" in its news columns and in its headlines, to inform the public upon this costly sickness just as they inform it upon other less deadly but more spectacular afflictions. It is up to the physician to make syphilis newsworthy and up to the press to seize upon these newsworthy items.

There is need for a change in the attitude of the general public. It must realize that half of the syphilitic infection in this country, is innocently acquired. The stigma of something illicit must be removed, the designation unclean must be taken away from the infected person regardless of the manner in which he acquired the infection. Even though it might have been acquired in venery syphilis may be spread through the most innocent contact with an infected person. The living well must be thought of more, prudish dissenters less, if this scourge is to be banished.

The present offers an excellent opportunity to begin the widespread dissemination of information to the public in regard to syphilis. The coming week has been designated the "Social Hygiene Week" of the Missouri Social Hygiene Association. At an informative series of

meetings, the details of which are presented elsewhere in this issue, outstanding leaders in the field will offer their observations of the problems to be met with specific indications of the manner in which they may be solved. But no matter how well these meetings may be attended it is undoubtedly true that the persons who need them least will hear the speakers. It is up to the public press to carry the message; it is up to the public press to put the knowledge where those who should have it will at least be given the opportunity of reading it. But these accounts must be so written that every person can understand them; there must be no substitution of words; there must be no veiled allusions to a subject which the Victorian Age considered not nice or indecent. We are living today in a world alive to all the multifold problems which face it. We must see to it that those problems are clearly and straightforwardly presented. No opportunity can be lost to spread the message of the local and national leaders of this conference led by Dr. Ira S. Wile of New York City.

The Missouri Social Hygiene Association, composed of physicians, welfare workers and others concerned with the public health, was organized to promote the development of community forces which safeguard health and character in so far as they are influenced by sex attitudes and practices. It aims to prepare youth for marriage, to present and enrich family life, to combat commercial vice, sex delinquency and venereal disease by educational, legal, protective and medical measures. The press and the public must be enlisted to further their cause. There must be less deprecation of vice and immorality—after all those are individual matters. But, on the other hand, there must be more and more opprobrium cast upon untreated syphilis—that is a vital public concern, one which affects the health of a nation, the physical and mental endowment of its children, brings incapacitating heart disease, the development of criminal insanity and the growth of unfitness of every description. But the greatest crime of all is not to have syphilis; the greatest crime, the most heinous offense, is not to have it treated.

FUNCTIONAL EFFICIENCY OF VARICOSE VEINS

The trend of fashion during the last few decades has been away from tight constrictions about the body. Women depend less and less upon the iron-stayed corsets of their mothers and have adopted the elastic girdle. Beneficial as the freedom from the pressure of unyielding supports may be to the abdominal organs the

change in the style of dress has been accompanied by one unfortunate by-effect. Women have come to depend upon an elastic band or "rolling" to support the stocking instead of the old fashioned and undeniably cumbersome garters, an integral part of the corset of the last century.

Modern obstetrics has materially reduced the incidence of milk leg, thrombophlebitis affecting the femoral vein or its tributaries. This formerly frequent cause of varicose veins of the lower extremities is now uncommon. Not so the varicosities themselves. It is often possible to demonstrate dilatation of the veins just under and below a tight band worn for the support of the stockings. After several years have passed, and despite the protests of the physician, the woman who persists in the use of this mode is likely to suffer from large varicosities of the legs. Of themselves they are relatively harmless but the secondary symptoms they produce vary from mild discomfort to actual pain, edema and ulcerations resistant to ordinary therapeutic efforts.

For many years ligation and stripping of the internal saphenous vein was the treatment of choice for certain types of varicosities. More recently, sclerosing agents have been recommended for injection into the lumen of the vein with the object of obliterating the blood channel. Carefully done, either method yields a satisfying percentage of immediate "cures." All too often there is a recurrence several years after the original operation. Sometimes the recurrence is the direct result of a wrong choice of operative procedures.

The surgeon depends upon several diagnostic tests as an indication of the type of operation to be preferred. Fundamentally, these tests have as their purpose the demonstration of the functional efficiency of the venous system of the legs. There are three coacting anatomical forces which must be separately evaluated if the right operation is to be chosen. First, the integrity of the deep venous system must be proved. If there has been an old thrombophlebitis with occlusion of the femoral vein it becomes obvious that the only route by which the blood can return to the heart is through the superficial veins; in such cases operation is useless. Second, it must be proved that the internal saphenous vein is incompetent, that its valves do not prevent the gravitational return of blood on account of the weight of the column of blood above. Should this be the case (with a functionally intact femoral vein) then ligation and stripping will undoubtedly prove of benefit. Third, it must be proved that the numerous veins communicating between the internal saph-

enous and femoral veins are functionally intact. Frequently, in the presence of varicosities, these veins enlarge from the hydrostatic pressure of the column of blood, become tortuous and their valves incompetent. In this last instance the use of sclerosing agents for the smaller varicosities in combination with ligation of the internal saphenous vein will probably afford a more satisfactory result than any other type of procedure. Only if the milking action of the contracting muscles furthers the return of blood toward the heart through the deep venous system, only then is operation likely to prove beneficial.

Since Sir Benjamin Brodie in 1846 described a method for evaluating the functional efficiency of the veins of the leg (a method since known under the name of Trendelenburg who reported it in 1891) there have been several attempts to perfect a satisfactory maneuver for the purpose. Mahorner and Ochsner¹ recently reported a simple means of evaluating the circulation in the venous system of the lower extremity affected by varicosities. A close inspection of the varicosities for size and distribution is made with the patient standing and walking in front of the examiner. A rubber tourniquet is then applied successively in each third of the thigh and the observations repeated. Depending upon whether the varicosities become smaller, larger or unchanged with the various positions of the tourniquet it is possible to determine with considerable accuracy the patency of the different portions of the venous system that must be studied before a recommendation for relief of the varicosities may properly be made.

Certainly the method has the advantages of simplicity, ease of application and relative certainty of results depending only on the experience of the individual examiner. It should prove a welcome addition to the tests at our disposal for finding an operative procedure that will prevent the edema, the pain and the ulcerations so frequently associated with long standing varicose veins, whatever their origin. At the same time, the presentation of this report emphasizes the importance of prevention of this anatomical disturbance. Proper obstetrics is doing its part in the prevention of pelvic infections which formerly caused deep seated thrombosis. The family physician must repeatedly warn his patients, both men and women, against the use of constricting bands on the lower limbs lest unwanted anatomical and functional disturbances result.

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HEALTH IN ST. LOUIS

A death rate in St. Louis of 12.4 per 1000 population for the year ending March 31, 1936, was reported recently by Dr. Joseph F. Bredeck, Health Commissioner. This was the lowest general death rate ever reported in the city. The infant death rate of 51.2, the second lowest ever reported, was a decrease of 12 per cent from the previous year. Maternal deaths established a low record with 4 per 1000 births, a reduction of 35 per cent from the previous year.

Other diseases which showed improved death rates were diphtheria, typhoid and tuberculosis. There was no case of smallpox reported during the year. Heart disease, pneumonia, cancer and diabetes remained among the important causes of death.

St. Louis shares with Los Angeles in the third highest death rate in cities of 500,000 population and over. Nine major cities have accomplished more than these two in safeguarding health. While group populations tending to lowered health conditions greatly influence death rates, still a comparison of the money spent in different cities and the death rates in the respective cities does indicate that "health is a purchasable article." Milwaukee in 1935 had a death rate of 8.4 per 1000 while St. Louis had a death rate of 12.4; in that year Milwaukee spent \$1.36 per capita and St. Louis 53.4 cents per capita.

Two measures in public health protection are especially needful, according to Dr. Bredeck's report; viz., work in tuberculosis control in St. Louis is practically at a standstill and the handling of venereal diseases is considered most unsatisfactory. The city's centralized venereal clinic was given as a primary reason for unsatisfactory work in this field and efforts are being made to decentralize this work.

NEWS NOTES

Dr. Horace W. Soper, St. Louis, addressed a meeting of the Illinois Section of the American College of Physicians at Peoria, Illinois, September 24. His subject was "The Clinical Significance of Milk and Cholesterol in the Dietary of Man."

Drs. W. T. Coughlin and James L. Mudd, St. Louis, were guests of the Boone County Medical Society at a meeting in Columbia, October 6. Dr. Coughlin presented an illustrated paper on "Malignancies That Involve the Mouth and Jaws." Dr. Mudd spoke on "Chronic Lung Suppuration."

The staff of the Research Hospital, Kansas City, entertained the board of directors of the hospital at a buffet dinner at the University Club on September 4.

Dr. Albert N. Lemoine and Dr. Thomas Hall, Kansas City, were guests of the Southeastern Kansas Medical Society, September 23, at Hesper, Kansas, and presented addresses.

Dr. Albert N. Lemoine, Kansas City, conducted a conference on treatment of tuberculous manifestations of the eye at the American Academy of Ophthalmology and Otology which convened in New York City, September 26 to October 3.

The Southwestern Branch Society of the American Urological Association convened for its sixteenth annual meeting in Omaha, Nebraska, September 17, 18 and 19. Missouri members who appeared on the program were Drs. Clinton K. Smith, Ernest G. Mark, R. Lee Hoffmann and Nelse F. Ockerblad, Kansas City; John R. Caulk, Otto J. Wilhelmi, Grayson Carroll and Bransford Lewis, St. Louis; H. McClure Young, Columbia, and Frank L. Bigsby, Kirksville.

In THE JOURNAL of the Missouri State Medical Association of August, 1930, there appeared a historical sketch of the St. Louis Pure Milk Commission, an organization which played a leading part in the cause of pure milk in the St. Louis area and throughout the state, since its inception in 1904.

By setting up model dairies for the production of certified milk it has sought to edify the public as well as the dairyman as to what is actually possible along these lines under the scientific direction of physicians.

Now the St. Louis Pure Milk Commission as such has come to an end for after an independent existence of thirty-two years its board of directors by their own act has been dissolved, the local control of the production of certified milk being henceforth vested in a committee to be known as the Medical Milk Commission of the St. Louis Pediatric Society, a group of seven, of which the president of the society, Dr. John Zahorsky, and the secretary, Dr. Max Deutch, are ex officio members. Dr. Adrien Bleyer, president of the St. Louis Pure Milk Commission since the death of Dr. George Tuttle in 1926 will be chairman of the new commission. The other members are Dr. Paul Zentay, secretary and director, Dr. T. C. Hempelmann, Dr. T. W. White and Dr. Maurice Lonsway.

The Bureau of Human Heredity, London, England, is requesting all available material furnishing well authenticated data on the transmission of human traits. The Bureau, directed by a council representing medical and scientific bodies in Great Britain, is collecting material dealing with human genetics and later an analysis will be made. Persons who wish to retain the sole right of publication of data sent are asked to accompany their material with a statement to that effect. Material should include all available details in regard to source, diagnostic symptoms and the name and address of the person who vouches for the accuracy of the statements, all of which is to be held confidentially. Material should be directed to the Bureau of Human Heredity, 115 Gower Street, London, W. C. 1, England.

The Southeast Missouri Medical Association held its sixtieth annual meeting at Cape Girardeau October 14 and 15 at the Marquette Hotel. Scientific papers were presented morning and afternoon of both days, with a business meeting preceding on the second day. A banquet was given on the evening of the first day at which Dr. Harry Barron, Fredericktown, was toast master. Dr. S. E. Mitchell, Malden, president-elect, delivered an address at the banquet. Officers presiding at the Cape Girardeau meeting were Drs. P. S. Tate, Farmington, president; Harry Barron, Fredericktown, vice president; Paul Baldwin, Kennett, treasurer; R. C. Kitchell, Sullivan, recording secretary, and John D. VanCleve, Malden, corresponding secretary. St. Louis physicians who appeared on the program were Drs. Duff Allen, A. H. Hamel, Clyde P. Dyer, Julius Jensen, Carl Vohs and B. Y. Glassberg. Mr. Ray McCarthy, St. Louis, spoke on "The Medical Dental Service Bureau and Group Hospitalization."

The Missouri Social Hygiene Association is sponsoring a social hygiene week in St. Louis November 1 to 7. There will be five open meetings during the week. On November 1, Dr. Richard S. Weiss, St. Louis, will speak on "A Tribute to the Pioneers of Social Hygiene" at the Church of the Unity at 11 a. m. "A New Outlook on Age-Old Problems" will be discussed on November 4 at 3 p. m. at the Wednesday Club Auditorium. Speakers will be Drs. Park J. White, Jean V. Cooke and John V. Lawrence, and Mrs. Pearl Case Blough and Rev. Truman B. Douglass, St. Louis. Dr. Llewellyn Sale, St. Louis, will speak at a mass meeting at Soldan High School at 8 p. m. November 5. At a meeting on November 6 at 8

p. m. at the Soldan High School Dr. Paul J. Zentay, St. Louis, will speak on "Are We Facing the Realities in Social Hygiene?" A "Professional Conference on Sex Education" will be held at 10 a. m. November 7 in the Washington University Medical School Auditorium. An institute fee of 50 cents will be charged.

Many Missouri members will take part on the program of the Southern Medical Association at its thirtieth annual session to be held in Baltimore, November 17 to 20. Those who will present addresses are Drs. Hugh L. Dwyer, Orval R. Withers and Ferdinand C. Helwig, Kansas City; M. Pinson Neal and Robert M. Moore, Columbia; Quitman U. Newell, Alphonse McMahon, Alexis F. Hartmann, Sidney I. Schwab, Clinton W. Lane, J. Albert Key, Neil S. Moore, Ross A. Woolsey, Millard F. Arbuckle, Dorothy Wolf, Leonard T. Furlow, H. Rommel Hildreth, Nathan Womack, E. V. Cowdry, C. Malone Stroud and Father Alphonse M. Schwitalla, St. Louis. Discussers of papers will be Drs. J. Albert Key, Frederick A. Jostes, Richard Paddock, Charles H. Eyer- mann, C. Malone Stroud and Millard F. Arbuckle, St. Louis. The following members will preside at section meetings: Drs. Quitman U. Newell, O. P. J. Falk, T. C. Hempelmann, James Barrett Brown, M. L. Klinefelter, Grayson Carroll, Ross A. Woolsey, Millard F. Arbuckle and Charles H. Eyer- mann, St. Louis. On the evening of November 17 the presidents and presidents-elect of the various state organizations will have a get-together dinner meeting for the exchange of ideas. Dr. Ross A. Woolsey, St. Louis, President of the Missouri State Medical Association, will attend and Dr. M. Pinson Neal, Columbia, will represent Dr. Dudley S. Conley, Columbia, President-Elect.

MISCELLANY

COMMITTEE ON MATERNAL WELFARE

Lacerations of the Birth Canal

QUESTION.—How frequent are lacerations of the birth canal encountered in primiparae?

ANSWER.—Some degree of laceration occurs in all primiparae delivering full-term babies.

Those who are inclined to brag about the fact that "the baby was delivered without a tear" are in reality unconsciously admitting that we did not make a careful examination of the part after delivery. Upon careful examination of the posterior fourchet, navicular fossa (depression between the hymenal rings and the posterior junction of the labia majora), the

lower third of the vagina and particularly the inner surfaces of the labia minora, as well as the clitoris and urinary meatus, some type of laceration or lacerations will be readily found. In the anterior half of the vulva they are as a rule in the nature of first degree tears. However, because of the extreme vascularity of these parts which is due to the extensive and intricate network of arterial capillaries in the subcutaneous tissues, profuse and persistent bleeding may be caused by the superficial tears if they are neglected or overlooked. For this reason all lacerations situated in the anterior half of the vulva that extend into the subcutaneous tissue should be sutured. A continuous single suture of a No. 0 or No. 1 plain catgut on a small round needle is to be preferred. The additional trauma produced by larger needles or heavier catgut may thereby be avoided. The torn skin edges are approximated but these sutures should not be pulled too tight. The object is to insure hemostasis as well as to effect an approximation of these structures and thereby restore the continuity of the parts.

Anterior tears occur almost invariably in primiparae when a normal-sized head is allowed to deliver spontaneously without an episiotomy having been done. They are the result of an overstretching of the skin rather than being due to insufficient relaxation of the peritoneum.

Tears in the posterior half of the vulva may result from overstretching of the skin but are more apt to be due to inability of the pelvic floor and peritoneum to stretch sufficiently when sufficient time has not been allowed for relaxation to occur. This happens when the head is allowed to deliver too rapidly.

The most common site for lacerations is the posterior fourchet and the lower third of the posterior vaginal wall attached to this portion of the perineum. The vaginal membrane tear may be situated in midline and extend directly upward on the posterior vaginal wall or tearing may occur in each posterior lateral vaginal fornix in which case they are multiple and usually connected by a transverse split in the region of the caruncula myrteiformes (remnant of the hymenal ring).

These lacerations may involve the mucosa or skin and the structures lying immediately beneath them, but as a rule they are second-degree tears because the deeper structures are also involved. These usually include the perineal body, the external sphincter muscle and the urogenital diaphragm, but when the laceration is deep both layers of levator ani fascia and the muscle itself may be involved. When the internal sphincter and anterior rectal wall are affected a so-called third-degree tear has occurred.

In the repair of these lacerations the vaginal membrane along with the recto-vaginal fascial layer should be approximated first in such a way as to completely close the rent in the membrane. This is to prevent the possibility of any lochial discharge seeping into the wound. If this occurs healing by primary union may be interfered with and an abscess may form or the repair may break down. These layers are approximated down to and including the remnant of the hymenal ring which is situated at the muco-cutaneous junction. Then the deeper layers are approximated separately or all together in the same suture if the laceration is not too deep. When the levator muscle and its fascial coverings are involved they should be repaired separately with interrupted catgut sutures. The skin and subcutaneous tissue may be closed with a separate suture or may be included in the suture that is used for approximation of tissues situated

Comments and questions by members are solicited and will be discussed by members of the Committee on Maternal Welfare.

above the levator ani if the laceration is not too extensive.

Interrupted or continuous through and through sutures may be satisfactory but interrupted sutures are preferred because then if one of them does not hold the possibility of the entire wound breaking down is less than when a continuous suture has been employed.

When asepsis is assured absorbable catgut sutures are perhaps best. No. 2 twenty- or forty-day chromic catgut for most of this work but if the laceration is extensive and asepsis is questionable or if it opens into the rectum, these should be reinforced with one or two interrupted nonabsorbable sutures and for this purpose we prefer silkworm gut. Some men use interrupted figure of eight silkworm gut sutures instead of catgut for the repair of all structures except the vaginal membrane. We do not think this is necessary as a routine procedure.

It is important to see that these sutures are not pulled too tight because the tension on them is increased when the perineal muscles are relaxed by bringing the knees together with the legs in an extended position. If this tension is too great it may cause strangulation of the tissues included in the sutures.

Careful approximation of tissues is essential for complete healing and in order to obtain a good functional result. Hence, the integrity of the perineal body must be restored and preserved by anatomical approximation with a type of suture that can be depended upon to hold.

When these lacerations are repaired a good functional result may be expected but if they are neglected or overlooked the future health and welfare of the young mother may be very seriously impaired. Hence, we think it should be assumed that every primiparae delivering a full-term child has some type of injury to the birth canal, pelvic floor or perineum and that our job is to find it and repair it if it extends into the subcutaneous tissue or deeper structures.

OBITUARY

GEORGE WESLEY BARNES, M.D.

Dr. G. W. Barnes, Springfield, was born April 7, 1855, in Greene County, Missouri. He was married to Anna L. Fender in 1886. Two children were born to this union, one died in infancy and the other, Mrs. Genevieve Jared, survives. Mrs. Barnes died in 1930.

Dr. Barnes obtained his literary education at Morrisville Methodist College and received his medical degree from the Missouri Medical College, St. Louis, in 1884.

He first located at Brighton, Polk County, Missouri, where he practiced until 1888 when he moved to Springfield, locating on Commercial Street where he did general practice until his retirement because of his health. He was injured in an automobile accident April 13 from which he never recovered and died June 9, aged 81 years.

Dr. Barnes was city physician for twelve years. He was a member of the Masonic Lodge, Campbell Street Methodist Church and was an honor member of the Greene County Medical Society.

The doctor was one of the pioneers of medicine in Springfield and Greene County and was held in high esteem by a host of friends and former patients.

Thus passes another of the old school of general

practitioners of half a century of general medicine.—W. P. P. and W. R. B.

SAMUEL DWYER HENRY, M.D.

Dr. Samuel D. Henry, Excelsior Springs, a graduate of the Kansas City Homeopathic Medical College, 1894, died May 23, 1936, in the Excelsior Springs Sanitarium and Hospital, aged 77 years. Dr. Henry had been seriously ill for several weeks and in poor health for several years.

Dr. Henry was born in Brooklyn, New York, but spent his early childhood and young manhood at Ottawa, Chicago and Bureau County, Illinois.

After receiving his medical degree he began his practice in Excelsior Springs, later taking postgraduate work in Chicago and returning to Excelsior Springs. He had practiced there for thirty-one years at the time of his death.

Dr. Henry was active in the Clay County Medical Society and had served in several capacities including the presidency. He had served his community as a member of the city council and as a commissioner of a special road district. He was a member of the I. O. O. F., Masonic and Elk lodges.

He is survived by his widow, Mrs. Esther Ferguson Henry, one daughter and two sons.

Books for Leisure Moments

The ever informative Logan Clendening seems to be a moving spirit in Kansas City in affording the general public first hand glimpses into modern American medicine. Recently "Diseases and Destiny" (D. Appleton-Century Co., New York) by the globe-trotting Ralph Major, of that city, was reviewed in this column. Now it is our pleasure to present "The Gift of Columbus" (Brown-White Company) by Dr. Charles C. Dennie, also of Kansas City. The gift is really what Major would have called a plague, the plague of syphilis. The author adduces evidence to show that syphilis was not unknown in Europe at the time of Columbus' first voyage; that, in fact, a long forgotten Spanish physician, Francisco Lopez de Villalobos, was actually at work upon the exhaustive treatise which took six years for its completion, in which he described the various protean manifestations of this disease and recommended mercury as a curative agent. Syphilis, writes Dennie, was known in Africa, India and China before it was called the Neapolitan Disease and spread widely by the invading French troops.

Much of the book is taken up with a layman's description of the havoc wrought by the pale spirochete in heart, brain and spinal cord. Occasional case descriptions afford the layman a ready understanding of the symptoms of the disease. Modern methods of treatment are explained.

The crying need for control of the spread of venereal disease is emphasized by Dennie. He advocates marriage laws which will ensure a thorough examination of each of the contracting parties to rule out the presence of venereal disease. Despairing of continence on the part of the present generation of young moderns he recommends prophylactic measures similar to those so successfully used in the American armies during the last war. The book should go far toward affording a rational understanding of this crippling mimic. It may be hoped that a few youngsters will avoid the present which Columbus gave to America by reading it.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL
FOR 1936(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 19, 1935.

Montgomery County Medical Society, January 7, 1936.

Ste. Genevieve County Medical Society, January 8, 1936.

Camden County Medical Society, January 9, 1936.

Dent County Medical Society, January 13, 1936.

Perry County Medical Society, January 17, 1936.

Webster County Medical Society, February 4, 1936.

Moniteau County Medical Society, February 29, 1936.

Benton County Medical Society, April 6, 1936.

Phelps-Crawford County Medical Society, April 6, 1936.

Jefferson County Medical Society, April 20, 1936.

BUCHANAN COUNTY MEDICAL SOCIETY

Following a dinner given the Buchanan County Medical Society by Dr. Orr Mullinax, Superintendent of State Hospital No. 2, on September 2, the meeting was called to order by the president, Dr. J. M. Allaman, St. Joseph.

Dr. Allaman paid tribute to the late Dr. C. R. Woodson who for so many years was host to the Society at a banquet at his sanitarium at the September meeting. Mrs. Julia Woodson Edmond, daughter of the late Dr. Woodson, who continued the September dinner as long as she operated the sanitarium, was introduced and gave a short talk. Dr. V. R. Wilson, newly elected member of the Eleemosynary Board, was introduced and spoke briefly. Mr. W. Ed. Jameson, President of the Eleemosynary Board, was presented to the Society and spoke at length on "Proposed Improvements in Equipment at State Hospital No. 2."

Dr. Allaman introduced Dr. Mullinax who in turn introduced the guest speaker, Dr. R. P. C. Wilson, Superintendent of the Missouri State School at Marshall, who spoke on "Missouri State School and Its Patients." The following are some interesting facts gleaned from Dr. Wilson's speech: There are 1248 patients at the Marshall school; feeble-mindedness is divided into three classes; fourteen teachers are employed at the school; the patients are admitted from the ages of 5 to 25; there is one patient admitted to every 2500 people in the county from which they came, and feeble-minded women are more prolific than normal women.

Dr. Wilson's paper was discussed by Dr. H. Delamater who favored the speaker's suggestion of conservative sterilization of the feeble-minded.

A motion was made by Dr. W. T. Elam, St. Joseph,

seconded by Dr. A. R. Timmerman, St. Joseph, that a vote of sincere thanks for the excellent banquet and entertaining program be given to Dr. Mullinax, the staff and board of directors of State Hospital No. 2.

O. E. WHITSELL, M.D., Secretary.

DALLAS-HICKORY-POLK COUNTY
MEDICAL SOCIETY

The Dallas-Hickory-Polk County Medical Society held its regular monthly meeting at the Ritz Theater, Bolivar, on October 6, with the following members present: Drs. C. H. Brown, Fair Play; V. H. Greenwood and G. C. Plummer, Buffalo; D. C. McCraw, J. F. Roberts, G. K. Sims, G. D. Smith, Bolivar; A. J. Stufflebam and H. M. Stufflebam, Humansville, and T. D. Wrinkle, Halfway. The following visitors were present: Drs. S. B. Smith and wife, Walnut Grove; W. R. Beatie and wife, Springfield; Ruth SeEVERS, Osceola; H. A. Hamilton and J. H. Summers, Lebanon, and J. H. Fowler, Chicago, American Norwegian Hospital.

Typhoid immunization in the schools of Polk County was discussed and a committee was appointed by the president which recommended that the physicians render a charge of \$5 for each of the three trips to any school within a radius of five miles and extra charge of 50 cents per mile for any additional mileage. It was further recommended since the state would furnish vaccines for this purpose only under the condition that the physicians rendering the service would do it gratis, that the state's offer be rejected and that the local school boards be required to furnish their own vaccines and remunerate the physicians as herein described. This recommendation was accepted in toto by the physicians of the county.

Dr. G. D. Smith, Bolivar, presented a paper on "Recognition and Treatment of Menopausal Disturbances," in which he stressed careful and differential diagnosis with special reference to uterine bleeding since this condition is one of the factors which may tax the ingenuity of the attending physicians. It was pointed out that the mass of literature which has accumulated on this subject during the last few years is misleading in many instances inasmuch as the ideas presented by one investigator may be the antithesis of that of another. It has been fairly well established of the cases in which there is vasomotor and emotional instability, that the dosage of theelin has been insufficient and that such conditions should be approached with this factor in mind. Dr. Smith was less enthusiastic relative to the use of Antuitrin S and other products of its type since results with this preparation in uterine bleeding had not brought the response that had been most hoped for.

Dr. H. M. Stufflebam, Humansville, by request, read Dr. T. K. Brown's (St. Louis) paper on "Puerperal Sepsis." Dr. Brown's treatment of these cases, consisting in the main of an early debridement followed by lavage of the uterus with an antiseptic solution, marks a radical departure from all of our American medical school teaching as well as that advocated by a large majority of our eminent obstetricians and gynecologists. Notwithstanding, Dr. Brown's report on a large series of cases is most favorable. Dr. J. V. Fowler, Chicago, the distinguished guest, in the discussion expressed himself that a generous note of warning should be sounded in reference to such radicalism, pointing out that in his city where the teaching and practice in such cases are so decidedly adverse to Dr. Brown's method of treatment, should one, by chance, lose a pa-

tient through the procedure he felt it would be a difficult matter to find a court or jury which might sustain the attending physician in his therapeutics.

Dr. G. K. Sims, Bolivar, in a paper, "Forceps, Their Indications, Contraindications, Uses and Abuses," stressed the conditions necessary for the application of forceps and pointed out why these conditions should be fulfilled. He enumerated the indications and the contraindications, both maternal and fetal, for the application of the instruments and emphasized the reason for adhering to these features if a forceps delivery. He showed how traumatism, both to the mother and baby, may manifest itself as "after-effects" as a result of failure of correct diagnoses, accurate placing of indications and in being unaware of fulfillment of conditions for the application of the instruments. And while the speaker emphasized the fact that some of the points mentioned have been "shelved" by some medical men, and that such may be said of much that is written on subjects of medical interest to the general practitioner, these points are just as important now as they have been in the past and, consequently, deserving of special consideration because some physicians are apparently too busy in their regular work to concern themselves with such reviews.

The last feature of the program, Dr. J. B. DeLee's sound film, "Forceps Operation and Episiotomy," which the doctors' wives attended, was a fitting climax inasmuch as it was apparently a sequel to the preceding number. The Society extended its thanks to this eminent obstetrician, not only for the art he has exhibited in the picture but for his generosity in permitting it to be exhibited.

Following the scientific program the members of the Society, along with the guests, enjoyed a banquet at which several of the guests and members made some interesting after dinner speeches.

G. K. SIMS, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met October 13 for its first fall meeting. Seventeen members were present.

Dr. O. T. Blanke, Joplin, reported that an investigator working for the Kansas State Medical Association had called on Dr. Stark and secured examination and treatment and received a receipt for \$1.50 in payment for this service. As he was required to call on the doctor in Missouri he presented his credentials and evidence to Dr. Blanke and was told to take it to the prosecuting attorney. It was the desire of the Society that the secretary write Mr. Warden and find out what action had been taken in this matter.

The application of Dr. Walter M. Howard, Carthage, was presented and he was voted a member. The applications of Dr. W. W. Hurst, Joplin, and Dr. Maxwell J. Harris, Carthage, were read and given to the Board of censors for report.

A letter from the State Board of Health with regard to the agglutination test was read.

A letter from Eli Lilly and Company was read offering the use of the three films, "Collapse Therapy," "Ergotocin" and "Amebiasis." It was the desire of the Society to see these films.

A letter from the Wyandotte (Kansas) County Medical Society stated that Dr. C. N. Outt, now practicing in Jasper County, was a member in good standing of the Wyandotte County Medical Society and that his dues were paid to January 1, 1937. The credentials of Dr. Outt were accepted and he was voted to membership.

Examination of physical education and R. O. T. C. students was discussed. It was the consensus of opinion that a letter should be written to the school board asking them to have their students examined by the student's family doctor, the school furnishing a form to be filled in by the examining doctor.

Dr. George Kirby Sims, Bolivar, expressed his desire to present a paper before the Society, the subject being "Forceps; Their Uses, Abuses, Indications and Contraindications." This paper will be read before the Society on October 27.

Dr. W. M. Kinney, Webb City, presented the case of a girl who received a laceration of her lip in an automobile accident; the laceration had later broken down and discharged pus. Examination revealed the condition to be of tuberculous nature.

Dr. E. J. McIntire, Carthage, presented the case of a woman who came to him complaining of hemorrhoids. On examination he found no hemorrhoids but a piece of glass one inch long in the rectal wall. Further investigation proved that it was a portion of a glass container in which she had kept food.

J. W. HARDY, M.D., Secretary.

RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met June 9 in the Chamber of Commerce Rooms, Public Library Building, Moberly. The meeting was called to order by the president, Dr. M. C. McMurry, Paris.

An announcement was made by the secretary concerning the program of the Randolph County Tuberculosis Society.

The scientific program consisted of a talk by Dr. L. O. Nickell, Moberly, on "Infection Beneath the Nail." This was an interesting talk and was followed by a general discussion. A formula for Castellani's solution for the treatment of ringworm infections was presented by Dr. Nickell and discussed. Following the meeting a lunch was served at Miller's Cafe.

The following members were present: Drs. M. C. McMurry and J. F. Flynt, Paris; T. S. Fleming, F. L. McCormick, L. O. Nickell, John Maddox and M. E. Kaiser, Moberly.

Meeting of September 8

The Society met September 8. The meeting was called to order by the president, Dr. M. C. McMurry, Paris.

A communication from the Mississippi Valley Medical Society and one from the Interstate Post-Graduate Medical Association were read. A letter from the Missouri Commission for the Blind was read and discussed.

The scientific program consisted of a motion picture on "Intravenous Urography."

Following the meeting a lunch was served at Miller's Cafe.

The following guests and members were present: Drs. G. W. Hawkins and F. L. Harms, Salisbury; G. G. Bragg and R. G. Epperly, Huntsville; M. C. McMurry, Paris; M. E. Leusley, L. E. Huber, F. L. McCormick, Martin Hunter, L. O. Nickell, C. C. Smith, C. K. Dutton and M. E. Kaiser, Moberly.

M. E. KAISER, M.D., Secretary.

SOUTH CENTRAL COUNTIES MEDICAL SOCIETY

The South Central Counties Medical Society met at the Elliott Hotel, Mountain Grove, at noon, October 1,

with the following members and visitors present: Drs. A. H. Thornburgh and E. C. Bohrer, West Plains; J. R. Mott, Hartville; J. A. Fuson, Mansfield; R. W. Denney and wife, R. A. Ryan and wife, H. G. Frame and wife, A. C. Ames and wife, C. F. Greene and J. M. Hubbard, Mountain Grove.

After dinner the ladies spent the afternoon at the Tri-County Fair reporting a pleasant afternoon.

The meeting was called to order in the hotel lobby by the president, Dr. A. H. Thornburgh, West Plains.

A letter from the State Board of Health was read, requesting that when sending blood specimens for diagnosis of typhoid, typhus, undulant fever, tularemia, etc., it would be much more satisfactory to send 8 or 10 cc., the same as in the case of syphilis instead of a smaller quantity of dried blood.

Dr. H. G. Frame, Mountain Grove, reported a case of pregnancy in a woman with high blood pressure and pathologic conditions of the thyroid and kidneys and raised the question as to whether it would not have been better to have sacrificed the child by abortion in hopes of saving the mother, rather than to lose the mother and save the healthy child as he did.

Dr. E. C. Bohrer, West Plains, read a paper on infant feeding that presented many of the newer ideas on the subject.

Dr. A. C. Ames, Mountain Grove, read a reprint of an article presenting some theories as to the effect of the thymus of the child in promoting cervical dilatation in childbirth.

Dr. H. G. Frame, Mountain Grove, suggested that in serious injuries it is often better to relieve pain, stop hemorrhage and treat shock and let other things wait with as little disturbance as possible until there is reaction, rather than to try to do too much at once and thus add to the shock.

All of these subjects were discussed quite fully by most of those present.

The meeting adjourned late in the afternoon to meet at Willow Springs, December 4, for the annual election of officers.

A. C. AMES, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

15th Annual Meeting, Atlantic City, 1937

President, Mrs. Robert Fitzgerald, Wauwatosa, Wisconsin.

President-Elect, Mrs. Augustus Kech, Altoona, Pennsylvania.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

13th Annual Meeting, Cape Girardeau, 1937

President, Mrs. Walter Kirchner, St. Louis.

President-Elect, Mrs. Charles Werner, St. Joseph.

Rules for Essay Contest

Many young people of high school age are below par physically. This is probably due to undernourishment and poor living conditions suffered by many during the last six or seven years of economic distress. Because of this, and as a part of its health education program

along the lines of preventive medicine, the Woman's Auxiliary to the Missouri State Medical Association is sponsoring an Essay Contest under the following rules:

Subject.—"Your Health and How to Preserve It."

Contestants.—Two Groups, (a) Junior High School Students (7th, 8th and 9th grades), and (b) Senior High School Students (10th, 11th and 12th grades).

Length of Essay.—750 to 1000 words for junior high school group and 1500 to 2000 words for senior high school groups.

Prizes.—Each county and city auxiliary will give the prizes for their respective contests. The State Auxiliary also will award the following prizes: Ten dollars, first prize, junior group; five dollars, second prize, junior group; ten dollars, first prize, senior group, and five dollars, second prize, senior group.

Time.—Contest will open October 1, 1936, and close April 1, 1937. Each county and city auxiliary will close its local contest not later than March 1 so that the prizes may be awarded and the essays taking first prize in each group may be in the hands of the state essay chairman not later than April 1, 1937.

Identification.—Each school participating shall choose a code number (such as B-1) to mark each essay, and the name of the contestant, address and name of school shall not appear on essay, but list of same be kept at the school.

Reference Reading.—Articles from *Hygeia* (or reprints of same); radio talks published by A. M. A.; Study Envelopes No. 2, No. 4, No. 5 and No. 7, published by Woman's Auxiliary to the American Medical Association obtainable from the National Program Chairman.

Judges.—Judges of the city and county auxiliary contest shall be the president of the local Auxiliary and two others appointed by her. The judges of the state contest shall be Mrs. Walter Kirchner, president, and two others appointed by her. Judging shall be on the basis of 65 per cent for subject matter and 35 per cent for form.

For information regarding above contest, apply to Mrs. Charles H. Werner, State Chairman, 1109 S. 12th Street, St. Joseph, Missouri.

BOOK REVIEW

THE BALANCED DIET. By Logan Clendening, M.D., Professor of Clinical Medicine, University of Kansas, author of "The Human Body," etc. Illustrated. New York: D. Appleton-Century Company, Inc. 1936. Price \$1.50.

In this small volume of 207 pages, the author has collected useful information about the chemistry of food and nutrition. There is a short history of the findings of some of the great physiological chemists of the last century. Under "Fundamental Principles," calories are discussed. The food elements, including vitamins, furnish the subject for the next fifty pages.

In the final half of the book infant feeding, diet for different age periods and for diseases are considered rather briefly. Food fads and economics with tables showing fuel value and percentages of protein fat and carbohydrate furnish the subjects in the concluding part of the book.

The book is suited for popular and elementary use in dietetics.

F. C. N.

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THE MANAGEMENT OF INJURIES TO THE SPINE AND PELVIS

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The care of injuries to the axial skeleton is no longer an occasional problem for the surgeon. It has become a problem in the practice of countless physicians scattered in communities large and small along the concrete arteries of our nation. High speed transportation and major trauma have gone hand in hand and it is just as important and appropriate to discuss the management of these patients with a group of physicians in general practice today as it was to confine the discussion to industrial surgeons twenty years ago. As the title of this paper indicates no attempt will be made to go into the many fine points of diagnosis, essential as that aspect is. Rather will it be my purpose to enumerate the measures which can be and should be used to react, relieve and rehabilitate these casualties of our civilization.

To begin at the beginning, let us go to the side of the road where the victim of the collision lies supine. He has no cuts or bruises but cannot help himself for he has tried it; he is in distress not to say pain and looks apprehensive. If he has not damaged his spinal cord at too high a level he can localize his pain to a certain area, and that is some help. Our next effort should be to ask the patient to move certain parts of his body himself and to advise whether it hurts him to do so and where, and whether his sensation is normal. The onlookers and family are pressing for action, but as the victim has had a blanket placed over him and is not to have a successful recovery jeopardized by hurried, clumsy handling to save a few minutes time we proceed to investigate. Next we gently lift the head and rotate it; we gently flex the head forward on the chest and inquire as to the location of any pain produced. Then

we gently manipulate the arms and the legs to detect sore spots where joints are injured, where muscles pull upon injured bone or where stiffness or flaccidity give valuable information. We look for blood at the urinary meatus, palpate the symphysis pubis for signs of separation and make a cursory examination of the abdomen for signs of ruptured viscus.

By this time we have made up our mind that the injured man has a spinal fracture, or at least a major injury. The ambulance has arrived and we do not have to jam the victim into the back seat of the sedan which a passer-by has kindly offered for transportation to town. Either the ambulance arrives or we await the preparation of a litter for nothing could be worse than to cram this patient into a tonneau.

The patient, up to this point, is lying practically as found and has been manipulated so gently that he has not objected to the pain. When we load him upon the litter we turn him upon his face for the first time and it is in this position that we mean to leave him until after the roentgen ray work is completed at the hospital. We are now able to look for kyphos, tender areas along the spine, muscle spasm and asymmetries which will be a guide to our roentgen ray work. Until the arrangement of the fracture bed or of the Noland-Conwell sling is complete, the patient is left in the prone position as this has been shown to be the least liable to damage the cord or to aggravate the deformity in fractures of the spine.

If shock is present, measures to combat it may be carried out from the start by applying external heat, administering opiates to control pain, by maintaining the head slightly lower than the rest of the body, by administering saline by vein or by hypodermoclysis on admission to hospital and finally by the hypodermic use of caffeine sodium benzoate, whole blood transfusion or whatever additional measure seems indicated.

Up to this point the internist or the obstetrician who first comes to the rescue can do as much good as a traumatic surgeon. From this



Fig. 1. A hyperextension frame designed by the author, a modification of one in use at the Boston City Hospital. This simply consists of a rectangular steel frame 39 inches by 20½ inches, with a sheet of spring steel welded to a hinge joint at one end and to a stout steel rod at the other. The notches in the frame accommodate the steel rod which extends beyond the spring steel and permits the arch to be made greater or less as needed. The hyperextension is usually begun in the third or fourth notch and increased by one or two notches a day until the sixth or seventh notches are reached. The steel arch measures 18½ inches by 39 inches and is about ⅛th of an inch in thickness. It is apparent that lateral roentgenograms may easily be made to check progress at intervals during hyperextension. As soon as satisfactory reduction has been accomplished steps may be taken to maintain it by cast, brace or graft.

point on, if the attending physician needs help he can usually sense it.

INJURIES TO THE SPINE

If dislocation of the cervical spine has occurred we can, at an appropriate time, administer a general anesthetic and proceed to reduce the dislocation by the manipulation of Walton. A plaster cast is then applied with the head hyperextended and including head, neck and chest. This is left on for an average of six weeks. Recheck by roentgen ray is advisable after reduction and application of cast, and lateral roentgenograms should be made every week or two thereafter since redislocation occasionally occurs. Some authorities advise reduction without anesthetic in the presence of shock due to cord damage as death is not hastened and may be prevented. By the same token, there is no reason why an attempt should not be made to reduce all dislocations of the cervical spine. Langworthy has reported reduction as late as thirty-three days after injury.

Fractures of the cervical spine, with or without cord injury, should be reduced by gentle manipulation and extension maintained by a Forrester or Crile head sling, by Crutchfield skull tongs or by fish hooks under the zygomatic processes as described by Neubeiser. Subsequently a plaster cast of head and shoulders should be worn for from two to three months and finally a celluloid or metal collar-brace made to fit down over the shoulders or attached to a Taylor back brace.

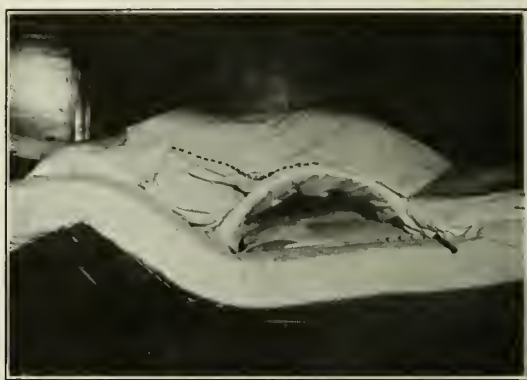


Fig. 2. Shows the author's frame in use on an adjustable bed. The buttocks rest on a rolled blanket which is removed to accommodate the bedpan. No pillow is allowed under the shoulders but there may be a small pillow under the head and pillows placed under the elbows and knees for the comfort of the patient. In addition, the whole bed may be raised or lowered or any one section changed in order to add to the comfort of the patient. So long as the patient's back rests on the arch it may be allowed to gravitate in either direction to avoid undue pressure at any one point. Dotted line indicates the contour of the back and hips. Patient at the time of this photograph was being given a rest by gravitation cephalad.

Since half of all fractures of the spine are compression fractures, and since 70 to 80 per cent are of the body of the first lumbar or the one above or below it, let us take up the management of a case of compression fracture of the first lumbar with signs of injury to the cauda, some evidences of concussion of the cord and sphincter changes. Our preference is for an adjustable hyperextension frame made on the principle of that in use at the Boston City Hospital. The arch is reduced to a minimum and the patient is placed upon it with the affected vertebral spine directly over the central point of the arch. By placing a single pillow



Fig. 3A. Illustrating the practically complete reduction of a severely crushed first lumbar vertebra. Photo shows the wedge deformity of the first and some destruction of the upper disk of the second lumbar vertebra. Fig. 3B shows the general contour of the spine restored with neither fracture apparent. A feature of the author's frame is the facility with which lateral roentgenograms can be made. Dr. Ira H. Lockwood has found that a Bucky diaphragm placed on its side in the bed opposite the area to be roentgen rayed gives a very satisfactory picture. While an aluminum arch would permit an anteroposterior roentgenogram, this refinement has not yet been attempted.



Fig. 3 B. Arrows mark the vertebral bodies involved. Roentgram made after a week of hyperextension.

beneath the head and a blanket roll beneath the buttocks, the patient can be made comfortable. In the course of the next forty-eight hours the arch is gradually increased until the arc described approaches 180 degrees of a circle. With the patient on a Gatch bed the emphasis may be shifted by raising or lowering the head elevator. The feet and legs are allowed to rest upon the knee elevator.

A lateral roentgram may easily be made while the patient is being treated upon this type of frame and the degree of hyperextension augmented as required to effect reduction. Once

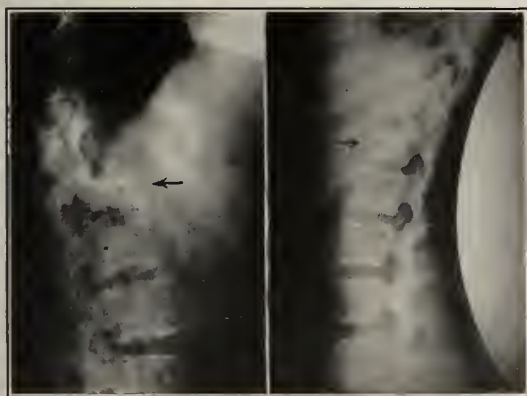


Fig. 4. Roentgrams, placed vertically for comparison, of a spine one month (left) after injury and one month after hyperextension on the author's frame. It is quite apparent that complete reduction of the fractured vertebrae will not be possible. However, improvement has been marked, both as to the structure of the vertebra and the general contour of the spine. Had this patient been seen within a week after the injury it is quite possible that complete reduction could have been accomplished. Artificial support of this type of fracture should be continued for many months by means of a cast or brace. In this particular case no kyphos was discernible 6 months after injury and a year after injury recovery was complete and no support of any type necessary.

Attention is called to the fact that the tips of the spinous processes actually contact the felt covered metal arch thus preventing any tendency to luxation which might occur in cases where the posterior portion of the body has been weakened by the fracture. Where canvas slings are used or hyperextension is accomplished by suspending the feet with the patient in the prone position, there is this danger. By gradually increasing the convexity of the arch of the author's frame, in contrast, any untoward symptoms may be abated before damage has been done.



(Figs. 5A, B, C are from roentgrams made of a patient referred to the author by Dr. Austin B. Jones who discovered the fracture during his examination. She had been under the care of a cultist for nearly a month prior to seeing Dr. Jones.)

Fig. 5A. Shows an oblique view of the spine and the obvious compression of the first lumbar vertebra as of March 20, 1935.

fully reduced, the patient may be left on the frame or placed in a bivalved plaster shell for three months. Following this phase of the treatment an ambulatory plaster cast may be applied, or a Taylor back brace with axillary crutches may be fitted.

While on the frame, the bed pan may be used by removing temporarily the blanket roll. The patient may be rotated to right or left long enough to rest or bathe the back, pillows being used to bolster. Particular nursing care is required to keep the back in good condition.

Partly because of the position and partly, perhaps, because of concussion of the spinal cord at the time of the original injury, a certain amount of abdominal distention and urinary dysfunction occurs in these cases whether cord or cauda have been actually damaged or not, and whether hyperextension is affected with the patient prone or recumbent, or undergoing gradual reduction or reduction by manipulation at one seance under anesthesia. For the relief of distention we have usually gotten results by use of enemas, rectal tube, hot pad or one of the peristaltic stimulators. In a recent instance negative pressure, saline hypodermoclysis and intravenous glucose were effective in restoring



Fig. 5B. Showing first roentgenogram made day after patient was placed upon the author's hyperextension frame. Note that comparatively little arching of the frame has thus far been employed.

a soft abdomen, normal bowel and bladder activity and making the patient comfortable within thirty-six hours.

Great care must be used to see that the bladder is thoroughly emptied and that overdistention does not occur. Under the best management about 8 per cent of cases of fractured spine develop renal calculus in convalescence. While this is probably unavoidable, it is felt that getting these patients into a plaster shell as soon as possible after the fracture has been reduced should be a great help by reason of the greater facility of change of position. If the catheter must be used, it is well to instill a colloidal silver solution afterward to inhibit the growth of bacteria.

Under the routine just outlined, a vast majority of compression fractures can be reduced and full anatomic and functional ability restored. There are many instances on record where reduction of the fracture has immediately caused a clearing up of cord pressure symptoms, and Breig has reported a case of complete paraplegia with loss of reflexes, anesthesia and retention of urine, which cleared up one hour after reduction of fracture. Some degree of reduction of compression fracture of the vertebral body is possible as long as two months after injury and to preclude the de-

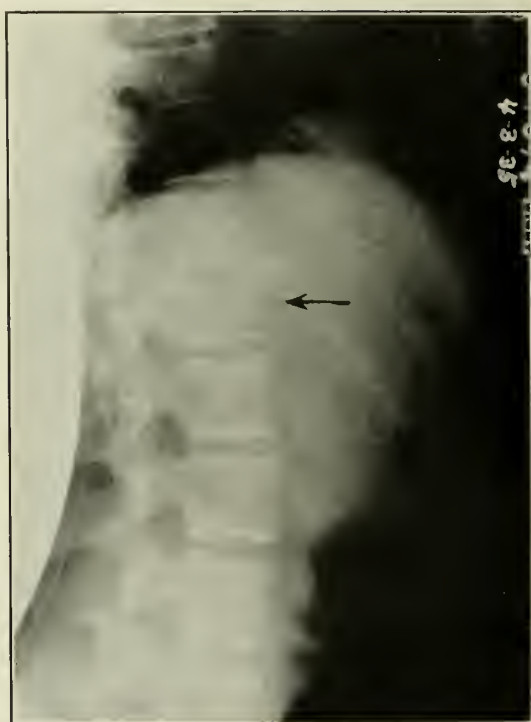


Fig. 5C. Showing frame more arched and the obvious effect toward reducing the fracture a week later. Ultimately an almost complete reduction was secured and a cast fitted. Later, a Taylor brace with axillary crutches was worn and a year later no support of any sort was needed. From the 8th month after injury comfortable full duty was performed at a very tedious occupation.

velopment of Kümmel's disease and mechanical postural changes the attempt to reduce should be made. Where a hyperextension frame is not available one may try the knee elevator of a Gatch bed as suggested by Shands and Oates (1933) and Jostes (1935), or may use the prone-swan-dive position with feet suspended or the spine sagging between two tables as variously recommended by Dunlop and Parker, Jones and Evans.

Of all the methods in use we consider the hyperextension frame, well covered with thick felt, to be the safest and best for, in addition to the hyperextending force, a direct push is exerted upon the kyphos and this relieves some of the force upon the posterior portion of the vertebral body and the facets.

Open operation must be resorted to only after it is clearly indicated that cord damage has not been irreparable at the time of original injury or that the cauda, which has the only nerve fibers capable of regeneration, has been injured to such an extent that great disability will result from neglect to repair it.

Nature is very kind in the repair of the most severe types of fracture dislocation of the lumbar spine. If the surgeon by the exercise of



Fig. 6. Patient J. B. C.: showing fracture-avulsion of the anterior inferior iliac spine. The film is identical with the one reproduced by Corlette¹ and depicts a rather uncommon condition. The patient, an American Indian, was seized with severe pain in the left side while "breaking over" a crate onto a two wheel truck. The force producing the fracture appears to have been a combination of direct violence and muscular force with avulsion. Healing of the fracture was prompt and return of full function was complete in 10 weeks. Treatment consisted of recumbency with thighs partially flexed and an adhesive girdle passing above the great trochanters and below the fragment.

¹ *Medical Journal of Australia*, 11:20 (Nov. 12) 1927.

ingenuity is able to replace to a reasonable degree the displaced vertebrae, a firm callus wall will develop which will permit of a continuance of fairly active life. Even caudal injury does not complicate some of these cases.

INJURIES TO THE FALSE PELVIS

Treatment of fractures of the false pelvis consists in immobilization by an adhesive or plaster of paris girdle, unless injury to the soft parts or of a viscus requires other care. In the latter event the fracture may be disregarded until the repair of the soft parts is complete. At least one case has come under the author's observation where neglect to conform the ilium to its normal alignment caused serious mechanical disability by misdirecting the force of the flexors and rotators of the thigh.

The iliac bones are well embedded in muscle and injury to the viscera need seldom be feared. If present, of course appropriate treatment should be instituted, e. g., laparotomy, drainage and suture of gut.

After a period of six weeks in adults, a well-fitted duck sacro-iliac belt is usually adequate

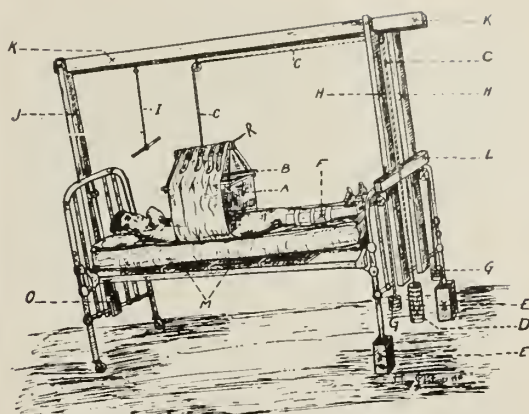


Fig. 7. The Noland-Conwell sling. Particular attention is directed to the spreader which is a board of $1\frac{1}{2}$ inch material made the width of the muslin hammock and maintaining the vertical sides of the hammock at the transverse diameter of each patient's pelvis. Thus no undue compression is exerted which would tend to overlap fragments in pelvic fracture.

support and the patient is encouraged to get up and about, gradually increasing the time allowance.

In avulsion fractures of the anterior iliac spines a narrower adhesive girdle (6 to 8 c.m.) is preferable to a wide one, and this is placed so as to bear upward against the fragment. The lower border of the girdle should come down to, but not overlap, the great trochanter on either side. Flexion of the thigh is thus permitted, in fact is necessary for the first two weeks if the avulsed fragment is to remain in contact with the ilium. To accomplish this the patient is kept in the recumbent position with pillows under both knees.

FRACTURES OF THE TRUE PELVIS

Most authorities are agreed that the most common complication of fracture of the true pelvis is injury to the urethra. Next most frequent is injury to the bladder, and next, injury of the rectum which is rare. Injury to the ureter is very rare indeed and most reports are of gunshot wounds with the projectile or bone fragment doing the damage. Injuries to the penis or to the external genitalia of both sexes are not uncommonly reported in conjunction with fractures of the true pelvis by direct violence. So well protected are the internal genitalia of both sexes that injury, even as a complication of direct violence with fracture, is very rare.

The likelihood of injury to the bladder is proportionate to the degree of distention with consequent elevation from the protection of the bony pelvis and increase of intracystic pressure. If the usual tests reveal rupture, suprapubic cystotomy is indicated at the earliest moment and the wound repaired if accessible.

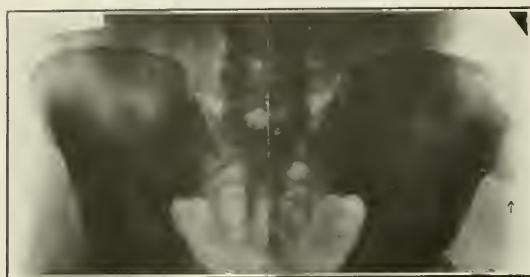


Fig. 8. Patient J. O. M.; illustrating one of the few cases encountered by the author where fracture of the false pelvis years before appears to have interfered with body mechanics. Note flaring of anterior portion of left ilium. Patient manipulated thigh in a mechanically awkward manner.

Drainage of the bladder should be suprapubic or per urethram or by both routes for ten to fourteen days.

Urinary extravasation requires perineal, suprapubic or retroperitoneal drainage depending upon the location of the injury. Intraperitoneal rupture of the bladder of course requires drainage of this cavity after repair of the wound.

In urethral injury without extravasation of urine conservative treatment is indicated. If there has been definite rupture, perineal section is indicated at once for drainage and to locate and repair the urethra. Suprapubic cystostomy is usually indicated also for retrograde catheterization in locating the proximal end of the urethra, to aid in repair and for a time for drainage where an indwelling catheter is contraindicated.

The most vulnerable portion of the bony pelvic ring is through the ascending ramus of the os pubis and the ramus of the ischium as this

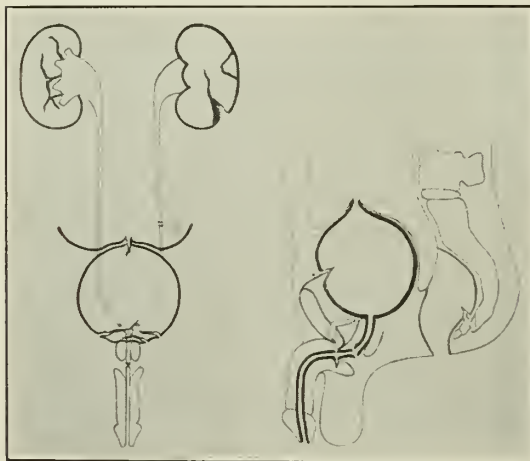


Fig. 9. Illustration from Böhler's text to show the points of injury possible to organs in fracture of spine and pelvis. The injuries affecting kidneys need involve no fracture, and ureteral injury is the result, as a rule, of penetrating projectile or bone fragment displaced by it. Note that injury to genital (internal) apparatus is not shown for the reason that such injury is almost if not quite impossible as a primary result of injury to the bony pelvis.



Fig. 10. S. P., aged 45, showing fracture of pubic ramus on right side and fracture separation of symphysis.

This man, driving his auto, was struck by a locomotive and thrown 30 feet. The remarkable point in this case is that during a stay of 10 weeks in hospital and during a subsequent period of 6 weeks' observation no complaint was made of backache, although there can be no doubt that a severe wrenching of the sacro-iliac joints must have occurred.

Another point of interest is that no injury to the kidneys was evident at any time. Some damage to the bladder neck or urethral mucosa was evidenced by blood at the urinary meatus and blood in diminishing quantities in the urine for several days without symptoms or signs of mechanical derangement.

section of bone is the frailest. In cases of lateral compression where the acetabulum holds, it is not uncommon to find a fracture running through one or both rami and even bilateral fractures in this area.

The author has seen four instances within a year of fractures in women who were riding in the back seats of automobiles and who were subjected to more or less lateral compressing force in accidents. These four, added to the others seen with fractures of the ischium, through the acetabulum and elsewhere, make it appear that back-seat riding is evolving a fracture situation of its own.

Fractures of the acetabulum range all the way from chip fractures of the rim to badly comminuted and displaced fractures. The author has devised an original method of handling this type of fracture. (See Figs. 12 and 13.)

Fractures of the sacrum are not uncommon and are usually due to direct violence to the lower back. In the cases attended by the author no injury to the sacral plexus of nerves occurred, although this is always a possibility with paralysis of the lower extremity and of the sphincter ani, loss of sensation and incontinence of feces. An unusual case of fracture of the



Figs. 11 A and B. The fractures illustrated in these photographs occurred in two women who were seated side by side in the back seat of a sedan which was struck amidships, but not violently enough to overturn it. It is becoming plain that a sudden sharp violence transmitted through opposed femoral trochanters with the victims seated relaxed, or at least with the thighs flexed, is capable of much damage to the pelvic bony framework. In addition to these two patients the author directs attention to the case illustrated by figure 12 and refers to four additional cases of this "back seat fracture" seen within a year. In the case presenting the comminuted fracture at the pubic symphysis, laceration of the pubovesical ligaments took place, there was hematuria for a week and paresis of the bowel. Recovery was complete under conservative treatment.

sacro-iliac region is illustrated because of its extreme interest. (See Figs. 15A, B and C.)

Fractures and dislocations of the coccyx are not rare but are less frequently encountered than the court records and claims would indicate. The injury is always by direct violence and rectal examination will often confirm the diagnosis with or without roentgen ray evidence. The fracture or dislocation can be reduced by bimanual manipulation under regional anesthesia. The buttocks are then firmly strapped with adhesive or a snug girdle lacing up the back is fitted. The patient is encouraged to avoid sitting on hard surfaces, is advised to use local heat freely at first and to keep the bowels loose. If, after the use of an inflated rubber ring, recumbency and the other measures enumerated, pain and disability persist infiltration of the coccygeal nerve plexus with a solution of 1 per cent quinine and urea hydrochloride may be tried. Failing to relieve by these procedures after four to six weeks, we are justified in removing the coccyx. It is important to leave a smooth, round sacral end as some of these painful cases are in reality due to sacrococcygeal arthritis which will persist if an articulation is left.

It is important to remember in the care of these cases that roentgenologists are pretty well agreed that many distortions of the coccyx occur without coexisting pathology; that even right angle flexion is not cause to treat these cases as dislocations or fractures in the absence of other signs. It is also well to remember that a number of these cases occur in neurotic women with and without pelvic disease.

Traumatic separation of the pubic symphysis with or without fracture at the joint are not uncommon. Treatment consists of the same routine as that followed in other fractures of the component bones of the pelvic rim.

Fractures and epiphyseal avulsions of the ischial tuberosity are not rare and the treatment consists chiefly of rest in bed with or without strapping of the buttocks, application of local heat and the use of anodynes. In four to six weeks these patients can safely go about light work and while sitting down should choose well padded seats or carry an air cushion. Open operation is seldom if ever justifiable.



Fig. 12A. Case E. D. M., showing the condition on admission to service of Dr. O. H. Lienhardt at Research Hospital, i. e., fracture of the right pelvic girdle with marked central displacement of acetabulum, and dislocation of left hip, the result of transmitted violence from other passengers in the rear seat of a sedan which was struck on the side.



Fig. 12 B. Showing amount of reduction accomplished in 4 days by means of skeletal traction on a Böhler frame.

SACRO-ILIAC AND LUMBOSACRAL STRAINS AND SPRAINS

By far the most important point in the management of cases of low back injury is great care in taking the history. This is more especially true since the vast majority of cases of lumbosacral and sacro-iliac sprain show absolutely no evidence on the roentgen ray films. Strains, of course, show nothing; neither do early arthritis or lumbago reveal themselves on the roentgen film.

The next most important point is careful physical examination beginning with the inspection of the gait, stance and behavior on entering the office to the final act of drawing on breeches while dressing. I personally survey all of these activities since they tell a story not always in harmony with the other findings of the examiner. This is especially important in the case of claimants and litigants whose claim of pain upon certain motions has to be confirmed



Fig. 12 C. Showing almost perfect reduction by means of traction in line of the femoral neck by means of Kirschner wire passed through trochanteric area of femur; an idea original with the author.

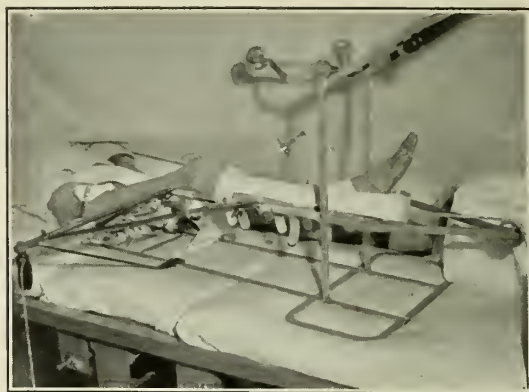


Fig. 12 D. One of the author's patients in whom trochanteric traction was applied for reduction of fracture of the neck of the femur. (Foot support had just been removed prior to photography.) Note the type of adjustable outrigger with pulley which may be clamped onto either side of Böhler frame for reduction of fractures of the hip or pelvis.

by other tests. Needless to say, the patient should be naked and a complete physical examination implies a routine beginning at the top of the head and extending to the longitudinal and transverse arches of the feet, a rectal, a vaginal and a urine examination.

If the history is consistent with that of trauma and does not simply involve a sore back discovered while arising from a night's rest or while bending over to shave, if use makes the pain worse, if rest with the thighs flexed is fairly comfortable, if the pain is anatomically well located over one sacro-iliac joint and not over both, over the lumbosacral joint and not over a vague area indicated by a sweep of the hand, we may take the matter pretty seriously and proceed with specific tests. Time will not permit detailed discussion of these tests but some of these found useful are leg crossing, flexion of the spine, hyperextension, straight leg-raising, tests for muscle spasm, prone to recumbent posture, and visa versa, and then a

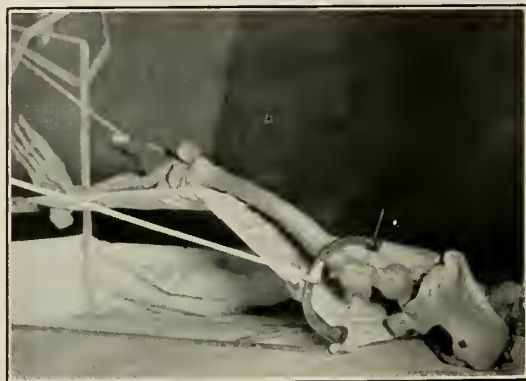


Fig. 13. Skeleton rigged to illustrate the author's plan for reduction of central dislocations of the hip, fractures of the pelvic girdle with central displacement, and certain intracapsular hip fractures preparatory to introduction of Smith-Petersen nail or application of spica cast.

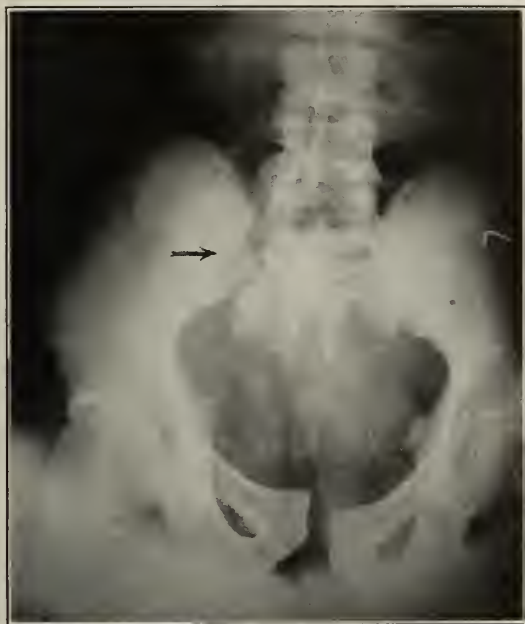


Fig. 14. Fracture through the wing of the right sacrum with displacement cephalad of the entire right half of the pelvis. The patient fell 14 feet landing upon right foot. Force was transmitted upward. Shock and massive retroperitoneal hemorrhage occurred. He was placed at once under a shock régime and a Noland-Conwell sling was applied. Buck's extension was applied to right leg. After recovery from shock seemed assured, patient took a sudden turn for the worse and died apparently of fat embolism in confusion and delirium.

weighing of the objective with the subjective in a balance made sensitive through experience in judging facial expressions, the feel of a normal prostate and some knowledge of the menstrual cycle.

Whether the conditions found be lumbosacral or sacro-iliac or a combination of the two, the early care of the average case due to trauma is the same. Our routine for some time has been to give these patients infra-red baking of the lower back while gentle massage with an anodyne liniment is carried out. Following this, a lamb's wool pad is applied over the entire sacral depression and the pelvis is encircled with adhesive applied snugly. Tablets containing aspirin, phenacetin and occasionally codeine are ordered to be taken every three hours with a full glass of water. The patient is ordered to bed and rest is enforced for several days at home if the surroundings are favorable. If not favorable or if good progress is not promptly evident, the patient is put on a fracture bed in the hospital and infra-red heat, hydrotherapy, low protein diet, mild laxatives and anodyne-salicylates by mouth are ordered. Where muscle spasm and local tenderness persist, opiates and atropine are administered by hypodermic and Buck's extension is applied to both legs with 8 to 12 pounds of weight and the foot of the bed elevated.



Fig. 15A. A case of 13 year old osteomyelitic sinus following fracture into the sacro-iliac joint which was cured by complete removal of superficial sinuses by wide incision, curettement and cauterization, followed by bismuth paste injection of deep pockets. A. Shows extent of sinus tracts and pockets deeply embedded in the gluteal region. Beck's paste was injected through the single opening over the sacro-iliac joint. (Roentgram made on June 6, 1929.)

If this routine is not successful after ten days or two weeks and roentgen ray films show no evident bone or joint injury, the patient may be encased in a plaster of Paris jacket. Both thighs are included if there is persistent sciatic referred pain. Where no sciatic pain has developed but where symptoms persist in the sacro-iliac joint, manipulation under anesthesia by the Conwell, Cox or Magnuson method is carried out. A lumbosacral or sacro-iliac supporting belt is applied and the patient is kept in bed for at least a week before being allowed to try locomotion. The support is worn for from four to six months in these severe cases, and even in the mild cases where recovery has followed promptly the measures enumerated above a light support is advised for a month or six weeks.

In the chronic or recurrent low back strains where trauma has been the unquestioned etiology, where focal infection has been ruled out or eliminated and where arthritis is not a factor, we are confronted with one of the worst perplexities of traumatic surgery. We usually begin by using the same measures enumerated above for the persistent mild cases; e. g., have a narrow belt fitted for the sacro-iliac case and



Fig. 15 B. Showing complete disappearance of sinus tracts in the buttock and injection of remaining single opening to outer side of the sacro-iliac joint (roentgram made February 4, 1930). Note pocket extending through sacro-iliac joint, or just beneath it, to a pouch lying on the ventral surface of the sacrum.

a heavy, canvas, metal-stayed corset fitted for the lumbosacral case. Manipulation is done in the sacro-iliac cases but is of no use in the lumbosacral. By general tonic treatment, postural exercises, regulation of the diet, salicylates perhaps, massage and encouragement, most of these cases eventually recover.

If the roentgen rays failed to reveal changes at first, they may now show them. A consultation is eminently desirable if light has not been thrown upon the cause of delayed recovery. One has to act upon one's hunches in choosing the proper consultant, but suffice it to say that a good clinician should not be forgotten in favor of urologists and orthopedists. Operation is somewhat hazardous but should be performed if recovery is delayed over a period exceeding six months in a man dependent upon a strong back for manual labor and if one is morally certain that all proper nonoperative measures have been tried to restore function. Stabilization of the lumbosacral joint may be by the technic of Hibbs or a combination of the Hibbs and Allison technics, or the Hibbs and Albee methods.

When all is said and done, we are inclined to agree with Ghormley that a comparatively small group of patients are amenable to surgical treatment and that one can pretty safely assure the patient that in time he will be relieved by conservative types of treatment. We follow Ryerson in the firm conviction that despite the most careful analysis it is not always possible to determine which of the three sacral articulations is giving most of the trouble and feel, with Ghormley, that any case in which tenderness shifts from one area to another is not a case for operation. Where all three joints are definitely affected the combination Ghormley-Smith-Pe-



Fig. 15 C. Showing lateral roentgram of the pelvis, the pocket filled with Beck's paste lying on the anterior aspect of the sacrum. This could be easily felt by the finger inserted in the rectum, and was examined for on numerous subsequent occasions following the injection of February 4, 1930. At the time he was last examined (Nov. 18, 1930) no sign of the pocket or of any sinus could be found. He had gained about 30 pounds in weight and had no discharge since early in April, 1930, the first such interval of freedom from pain and discharge in 14 years. No bismuth paste ever returned from the sinus so far as is known. Reports over a period of five years justify the statement that this sinus has apparently been healed.

terson operation appears to offer the best prospects of early restoration of function (from four to six months).

SPONDYLOLISTHESIS AND PRESPONDYLOLISTHESIS

Both of these conditions are due to congenital defects in the laminae of the lumbar vertebrae and the symptoms are seldom in direct proportion to the degree of bony deformity. The condition can and often does exist for many years in individuals doing hard manual labor and in wrestlers, weight lifters and others without causing symptoms or disability. In the successful management and for the patient's own good, therefore, less emphasis should be placed upon spinal anomalies of all sorts and certainly this one. Where it does exist (prepondylolisthesis or actual displacement of the vertebral body) it should be treated as are lumbosacral strains, e. g., by external support and conservative means or, if necessary later, by fusion operation.

BREECH DELIVERY

S. D. SOULE, M.D.

ST. LOUIS

In a previous report from the St. Louis Maternity Hospital the problem of breech delivery was discussed. Schwarz¹ was "impressed with the fact that traumatization, and therefore faulty obstetrical procedures, was responsible for the greatest percentage of fetal deaths following breech deliveries."

The unusually fine results attained at the time of that report warranted discussion of the procedure for handling breech deliveries as practiced in this hospital. Frank breeches are allowed to deliver spontaneously if there is continued progress. After the breech has delivered the baby is extracted by the Potter technic. If there is a delay of longer than two hours in the second stage of labor interference is the procedure, the breech being pushed up, decomposed and extraction completed. In complete breech or footling presentations, one delivers as soon as complete dilatation of the cervix is attained. The perineum is ironed out well and an episiotomy is made routinely in primiparae and occasionally in multiparae. This incision is made early, as soon as the vulva is distended by the presenting part. In the delivery of the after-coming head the Wigand-Martin method is used with only sufficient pressure exerted from above to maintain flexion of the head. If any resistance to delivery of the head is encountered, no traction is made but forceps are applied. The Piper forceps are most commonly used.

The present report is a detailed study of 202 breech deliveries observed in the St. Louis Maternity Hospital from January 1, 1932, to January 1, 1936, and a general summary of the 377 breech deliveries from January 1, 1928, to January 1, 1936. This series is limited to breech presentations per se and does not include either multiple pregnancies, one fetus of which is presenting as a breech, or version.

During the four-year period since the last report, the fetal mortality has reverted to that experienced during the earlier years of the previous series. It is the purpose of this paper to ascertain the reasons for the change. For the purpose of more detailed study the series has been divided into two groups, those of the ward and those of the private service. In this study only the babies weighing 2500 gm. and over are considered in the statistical tables. Of the total of 377 breech deliveries, 328 are thus summarized.

From the Department of Obstetrics and Gynecology, Washington University School of Medicine and the St. Louis Maternity Hospital.

Of the mothers in the series, 51.4 per cent were primiparae and 48.6 per cent were multiparae. The average duration of labor was 14.24 hours in the primiparae as compared with 8.52 hours in the multiparae.

Tables 1, 2 and 3 list the summaries of fetal mortality by years from 1928 to 1935, inclusive. For corrected mortality only macerated stillbirths, dead prior to onset of labor, and fetal abnormalities (hydrocephalus, etc.) are subtracted. The ward, private and combined services are compared. The ward mortality of 7.88 per cent compares favorably with the private service of 6.8 per cent, but does not approach the statistics of the earlier report when the ward mortality of 4.7 per cent excelled the private service of 8.21 per cent.

Table 1. Summary of Fetal Mortality in Breech Deliveries

WARD. Breeches, 2500 gm. and over					
Year	Living	Dead	Total	Uncorrected Mortality Per Cent	Corrected Mortality Per Cent
1928	16	1	17	5.88	5.88
1929	19	2	21	9.52	9.52
1930	20	1	21	4.76	4.76
1931	26	0	26	0.00	0.0
1932	22	3 (1)	25 (1)	12.0	8.3
1933	23	5 (1)	28 (1)	17.8	14.7
1934	22	5 (1)	27 (1)	18.5	15.3
1935	27	1	28	3.5	3.5
Total	175	18	193	9.3	7.88

() = subtract for corrected mortality.

Table 2. Summary of Fetal Mortality in Breech Deliveries

PRIVATE. Breeches, 2500 gm. and over					
Year	Living	Dead	Total	Uncorrected Mortality Per Cent	Corrected Mortality Per Cent
1928	13	4 (1)	17 (1)	23.53	18.7
1929	26	1	27	3.7	3.7
1930	20	1 (1)	21 (1)	4.76	0.0
1931	8	0	8	0.0	0.0
1932	11	3 (1)	14 (1)	21.4	15.3
1933	19	1	20	5.0	5.0
1934	10	0	10	0.0	0.0
1935	16	2	18	11.1	11.1
Total	123	12	135	8.8	6.8

() = subtract for corrected mortality.

Table 3. Summary of Fetal Mortality. Breech Deliveries

Total Ward and Private Breeches, 2500 gm. and over.					
Year	Living	Dead	Total	Uncorrected Mortality Per Cent	Corrected Mortality Per Cent
1928	29	5 (1)	34 (1)	14.7	12.1
1929	45	3	48	6.27	6.27
1930	40	2 (1)	42 (1)	4.76	2.4
1931	34	0	34	0.0	0.0
1932	33	6 (2)	39 (2)	15.4	10.8
1933	42	6 (1)	48 (1)	12.5	10.7
1934	32	5 (1)	37 (1)	13.5	11.1
1935	43	3	46	6.5	6.5
Total	298	30	328	9.14	7.45

() = subtract for corrected mortality.

654 macerated stillborn
8136 macerated stillborn
14840 macerated stillborn
15437 hydrocephalus
18336 hydrocephalus; spina bifida
20901 macerated stillborn

Tables 4, 5, 6 and 7 explain in detail the fetal deaths were associated with traumatization: either prolonged labor due to cervical dystocia, a long second stage or difficulty with fetal mortality by years for the last four years. It is noted that nine of the sixteen (corrected)

Table 4. *Fetal Mortality in Breech Deliveries*

1932									
	2500 gm. and over				Less than 2500 gm.				Total
	Ward		Private		Ward		Private		
	Living	Dead	Living	Dead	Living	Dead	Living	Dead	
Number of Deliveries	22	3	11	3	5	4	1	1	50
Protocol of Deaths	14840	(I)	1193		14107		14418		
	Macerated		3710 gm.		Premature		Premature		
	Stillbirth		Hard cervix		Macerated				
	Lues		Difficulty with aftercoming head		Stillbirth				
	15177	(R)			15221				
	3520 Gm.		No forceps		1060 gm.				
	46 hr. labor				Premature				
	Persistent cervix		15437		15642				
	Piper forceps		Hydrocephalus		1040 gm.				
	slipped off		8639		Premature				
	13223	(R)	4¾ hr. second		14836				
	5½ hr. second		stage		1260 gm.				
	Piper forceps		No forceps		Premature				
Uncorrected Mortality	12.0%		21.4%						15.4%
Corrected Mortality	8.3%		15.3%						10.8%

I = Delivered by Intern R = Delivered by Resident

Table 5. *Fetal Mortality in Breech Deliveries*

1933									
	2500 gm. and over				Less than 2500 gm.				Total
	Ward		Private		Ward		Private		
	Living	Dead	Living	Dead	Living	Dead	Living	Dead	
Number of Deliveries	23	5	19	1	0	2.	2	1	53
Protocol of Deaths	17297 3500 gm. Intracranial injury No forceps	(R)	18810 3 loops cord around neck F. H. B. o. k. No forceps Mauriceau-Smellie-Veit		15177 1200 gm. Monster 18533 1850 gm. Myoma Lues		17504 2020 gm. Toxemia of pregnancy		
	18206 3340 gm. Autopsy—no findings No forceps	(I)							
	18295 2500 gm. Prolapsed cord No forceps	(I)							
	17627 3380 gm. Induction of labor with bougies Intracranial injury No forceps	(R)							
	18336 Hydrocephalus Spina bifida	(R)							
Uncorrected Mortality	17.8%		5%						12.5%
Corrected Mortality	14.7%		5%						10.7%

I = Delivered by Intern R = Delivered by Resident

Table 6. *Fetal Mortality in Breech Deliveries*

1934									
	2500 gm. and over				Less than 2500 gm.				Total
	Ward		Private		Ward		Private		
	Living	Dead	Living	Dead	Living	Dead	Living	Dead	
Number of Deliveries	22	5	10	0	3	3	1	2	46
Protocol of Deaths	15031 3200 gm. Nuchal arm Atelectasis No forceps	(I)			20365 1695 gm. Toxemia of pregnancy		19104 2130 gm. Spina bifida		
	20193 3870 gm. Precipitate Lived 14 hrs.	(I)			21267 1200 gm. Macerated fetus		19484 1100 gm. Premature		
	20901 2920 gm. Macerated fetus F. H. B. absent				21832 810 gm. fetus				
	21178 3230 gm. Difficulty with aftercoming head Simple flat pelvis Piper forceps I. C. H.	(R)							
	21076 3880 gm. F. H. B. lost with 4 f. dilatation I. C. H.	(R)							
Uncorrected Mortality	18.5%		0%						13.5%
Corrected Mortality	15.3%		0%						11.1%

I = Delivered by Intern

R = Delivered by Resident

Table 7. *Fetal Mortality in Breech Deliveries*

1935									
	2500 gm. and over				Less than 2500 gm.				Total
	Ward		Private		Ward		Private		
	Living	Dead	Living	Dead	Living	Dead	Living	Dead	
Number of Deliveries	27	1	16	2	5	0	1	1	53
Protocol of Deaths	23047 3140 gm. I. C. H. Lived 48 hrs. Piper forceps	(R)	23688 2700 gm. Labor induced Difficulty with aftercoming head No forceps Atelectasis I. C. H.				24490 2260 gm. Pushed up No forceps		
			23093 2780 gm. Toxemia of pregnancy						
Uncorrected Mortality	3.5%		11.1%						6.5%
Corrected Mortality	3.5%		11.1%						6.5%

R = Delivered by Resident

Table 8. *Analysis of Fetal Deaths (1928-1935)*

Prolonged labor	8
(a) long second stage	5
(b) cervical dystocia	3
Flat pelvis	3
Prolapsed cord	2
Bandl ring	1
Nuchal arm	1
Maternal toxemia	1
Maternal heart disease (Bougie induction)	1
Asphyxia. Cord around neck	1
Hemorrhagic disease of newborn	1
Uncomplicated delivery	5
(a) precipitate	1
(b) simple delivery with intracranial injury ..	4
Macerated stillbirths	4
Hydrocephalus	2
Total	30

the aftercoming head. Table 8 analyzes the fetal deaths for the entire eight year series and demonstrates the same finding. This table also shows that there were five deaths with intracranial injuries in relatively easy deliveries where no such complication was anticipated.

It was noted that of the twenty-four (corrected) deaths in the entire series, one third (eight) occurred in primiparae and two thirds

tiparae is associated with the weight of the baby above 3200 grams. It is noted that 70 per cent of the fetal deaths occurred in babies weighing more than 3200 grams, whereas only 58 per cent of the living babies weighed more than 3200 grams.

Table 9. *Fetal Mortality in Relationship to Parity of Mother*

Service	Primiparae		Mortality	Multiparae		Mortality
	Living	Dead	Per Cent	Living	Dead	Per Cent
Ward.....	48	3	5.88	46	8	14.81
Private...	32	1	3.03	24	4	14.25
Total...	80	4	4.76	70	12	14.64

Table 10. *Analysis of Ward Service of Table 9*

Service	Primiparae		Mortality	Multiparae		Mortality
	Living	Dead	Per Cent	Living	Dead	Per Cent
Intern....	6	1	14.28	26	3	10.34
Resident and ass't resident	42	2	4.59	20	5	20.00
Total...	48	3	5.88	46	8	14.81

Table 11. *Relationship of Weight of Baby to Parity of Mother*

A. Babies Lost.	Weight of Baby (Grams)					
	2500-2900	2900-3200	3200-3500	3500-3800	3800-4000	4000 and over
Primiparae.....	4	0	0	1	2	0
Multiparae.....	0	2	5	1	4	1

B. Babies Born Alive.	Weight of Baby (Grams)					
	2500-2900	2900-3200	3200-3500	3500-3800	3800-4000	4000 and over
Primiparae.....	10	24	21	20	4	3
Multiparae.....	13	21	18	13	11	5

(sixteen) occurred in multiparous mothers. This being contrary to usual teaching, an effort was made to evaluate this finding in the light of whether the patient was delivered on private or ward service and, if on the ward service, whether delivered by the resident obstetrician or intern. Table 9 reveals that the ward and private fetal mortality relationship in regard to primiparous and multiparous mothers is comparable. Table 10 analyzes further the ward service of Table 9, as to whether deliveries were accomplished by the intern or resident physician on the ward service. Here it is noted that relatively few breeches are delivered by the interns. The higher mortality in the resident-delivered group (under supervision of a staff man) is to be expected in that this group comprises the more difficult cases. However, the high fetal mortality in multiparae persists. Table 11 demonstrates clearly that the higher mortality in mul-

Table 12 illustrates the treatment of the aftercoming head as discussed earlier in the paper. As a routine procedure the aftercoming head is delivered by a Wigand-Martin maneuver if there is no resistance to the delivery. By this method there is no traction on the neck of the baby as with the Mauriceau-Smellie-Veit procedure, the abdominal hand serving merely to aid in flexion of the head. With any resistance

Table 12. *Breech Deliveries*

Treatment of the aftercoming head				Mortality
	Total	Living	Dead	Per Cent
Manual extraction.....	102	90	12	11.7
Forceps used.....	66	60	6	9.09

Note: Piper forceps slipped off 4 times in 66 applications

to delivery of the aftercoming head, forceps (usually Piper) are applied.

The features of the Piper forceps are three-fold: The blades have a somewhat flattened pelvic curve, the shank is long and flexible permitting an unusual degree of spring between the blades, and the handles are depressed. In our experience this instrument has proved to be distinctly valuable. Considering that the forceps are used in the more difficult cases, the lower fetal mortality with the use of forceps is significant. (Table 12.) However, occasionally the forceps slip off the head due to the length and flexibility of the shank. Thus the instrument as constituted is, as Piper desired it, a forceps for flexion and not for traction. The proposed modification of the Piper forceps will shorten the shank, maintaining the present curves, use a less flexible metal in the shank and make the handles solid instead of hollow to prevent slipping.

The problem of shortening or eliminating the second stage of labor by pushing up, decomposing and extracting the frank breech, will not be discussed in detail because of the small number of cases available for study. Contrary to Piper and Backman² and Irving and Goethals,³ who perform this maneuver as soon as cervical dilatation is complete, we observe the progress of the case and interfere when there is a delay of more than two hours in the second stage of labor. In the hands of the operators who adhere to this principle the results have been extremely satisfactory.

CONCLUSIONS

1. A series of 328 breech deliveries is reported with a combined ward-private service fetal mortality of 7.45 per cent.

2. Traumatization is the chief cause of mortality in breech delivery. Prolonged second stage of labor, cervical dystocia and difficulty with the aftercoming head account for most of this traumatization.

3. A "hands-off" policy is to be observed until dilatation of the cervix is complete.

4. Spontaneous delivery of the breech is preferred if progress is steady.

5. With a delay of longer than two hours in the second stage of labor the breech is pushed up, decomposed and extracted.

6. Complete breeches and footlings are delivered as soon as dilatation of the cervix is complete.

7. Episiotomy is performed as soon as the vulva is distended.

8. Traction on the aftercoming head is to be eliminated insofar as possible. The Wigand-Martin maneuver is preferred to all other manual procedures for delivery of the aftercoming

head, the abdominal hand serving to aid flexion only.

9. If any resistance is encountered, forceps are applied to the aftercoming head. A proposed modification of the Piper forceps will shorten the shank and make it less flexible, thus allowing for a bit more traction without danger of the instrument slipping off the head.

10. The increased fetal mortality in multiparae in this series is definitely associated with fetal weight of more than 3200 gm.

11. Breech delivery is an obstetrical complication of major consequence.

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THE MODERN TREND IN THE TREATMENT OF STAPHYLOCOCCAL INFECTIONS

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The staphylococcus has the property of invading the skin and producing surface infections such as furuncles and carbuncles. It may also gain entrance to the blood stream and, possessing a predilection for bone, cause osteomyelitis or become embolically deposited in other deep seated tissues with the formation of metastatic abscesses. On the other hand, invasion of the blood stream may result in septicemia. Surgical management may readily induce recovery in many staphylococcal infections.

In this report observations will be confined to infections with the staphylococcus in which the blood stream has become invaded. It is clearly difficult to draw a distinction between a bacteremia and a septicemia. It would seem rational to employ the term "staphylococcemia" to include both of these conditions.

The discovery that many strains of staphylococci produce an exotoxin is the most important modern advance. Great advances were made in the treatment of streptococcal infections when it was discovered that certain strains of streptococci produced an exotoxin, and by the preparation of streptococcic antiserum a new and valuable therapeutic agent was added. There is every reason to believe that a greater

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advance may be made in the treatment of staphylococcal infections for the reason that staphylococci antisera can likewise be prepared; but, in addition, the staphylococcus toxin can be converted into a toxoid, a change not exhibited by streptococcus toxin.

J. T. P. Weld and her associates^{1, 2, 3} in America and Burnet⁴ in Australia are largely responsible for our present knowledge of staphylococcus toxin and its characteristics. The Bundaberg disaster in 1928, in which twelve children died suddenly after subcutaneous injections of diphtheria toxin-antitoxin mixture which had become contaminated with staphylococci, is a classical example of staphylococcal toxemia. The severity of staphylococcal toxemia was probably underestimated prior to this unfortunate accident. It has now been clearly demonstrated that staphylococcus toxin present in bacteria free filtrates possesses hemolytic, dermonecrotic and lethal properties. In fact, these three properties constitute the basis for some degree of standardization of toxin used in experimental work and the immunization of laboratory animals. Van de Velde,⁵ in 1894, demonstrated the presence of leukocidin in the filtrate of certain strains of staphylococci. Leukocidin may likewise be a property of the exotoxin. Pike⁶ suggests that on the basis of studies recently made the staphylococcus may produce other agents which depress phagocytosis. Loeb⁷ and Gross have each demonstrated a plasma coagulating substance present in staphylococcal filtrates which it is thought may play an important role in the formation of septic thrombi, so frequently encountered in severe staphylococcal infections. Stookey and associates^{8, 9} have recently reported clinical cases presenting dermonecrosis from which toxin making staphylococci were cultured.

The hemolytic property of a staphylococcus toxin now forms the basis of a test for natural antitoxin circulating in the human blood. The antihemolytic titer of the blood is felt to be a useful measure of antitoxic content. The titration, after the method of Parish, O'Meara and Clark,¹⁰ consists of the preparation of a system containing a 2 per cent suspension of washed rabbit cells, a fixed dose of stable staphylococcal toxin and varying doses of serum under test. The end point is the last tube to show complete absence of hemolysis; that is, complete neutralization of the toxin. There is evidence that the hemolytic and dermonecrotizing toxins run a parallel course. It has recently been discovered that most humans and laboratory animals possess within the blood a natural antitoxin to the staphylococcus. Reports in the literature indicate that there is considerable

variation in the amounts of staphylococcus antihemolysin present in the blood of laboratory animals and human subjects. This has likewise been true of subjects presenting various types of infection with the staphylococcus.

The experiences of Miss Dora Snyder in our laboratory confirm this. Her records show 110 normal human subjects examined for natural antitoxin. The antitoxin titers ranged from 0 to 1:128 with an average of approximately 1:8. There were twenty-four cases of osteomyelitis presenting antitoxin titers of from 1:32 to 1:8192, with an average of 1:1297. The reports of Parish and others indicate that patients suffering from boils and other superficial infections usually show little or no increase in hemolytic antibody. Deep seated infections of bone and muscle often give rise to very high titers. An acute case of osteomyelitis, not included in Miss Snyder's series, in which a hemolytic necrotizing staphylococcus was cultured from the bone infection but a positive blood culture was not obtained, gave several antitoxin titers no higher than 1:8.

A patient recently admitted to our service with a cavernous sinus thrombosis and with a positive blood culture of staphylococcus possessed no natural antitoxin. There is strong presumptive evidence to indicate that patients with unusually low or no natural antitoxin are more susceptible to infection. It is probable that most deep seated visceral lesions that are embolically deposited come from toxin making strains of staphylococci. In a staphylococcus septicemia, a pronounced drop in the red blood count provides strong presumptive evidence that the staphylococcus is a toxin making organism.

The treatment of staphylococcemia may be grouped as follows:

1. Supportive measures which include rest, fresh air, diet, infusions of glucose and saline solutions, ultraviolet, etc.
2. Surgical measures designed to drain or remove the original focus of infection or the evacuation of metastatic abscesses.
3. Administration of substances designed to combat the infection directly such as the intravenous injections of certain dyes and metaphen, bacteriophage and nonspecific proteins.
4. A group of agents in the use of which it is hoped the immunological defense of the patient may be increased. These include staphylococcus vaccine, blood transfusions, transfusions of immunized blood, staphylococcus toxoid and staphylococcus antitoxin.

The importance of supportive measures needs no emphasis. It is trite to say that whenever it is possible the draining or removal of super-

ficial or deep seated septic foci greatly enhances the chances for the blood stream to become sterile.

Since the intravenous injection of certain dyes, particularly gentian violet and mercurochrome, was advocated by Young and Hill,¹¹ there have been many reports regarding their use, some very encouraging and others equally discouraging. It is difficult to conceive that the dye could have any great bactericidal or bacteriostatic action when so greatly diluted in the blood stream. There are certain dangers in their use and, on the whole, their value is very doubtful. The reports on the use of intravenous metaphen lack an enthusiasm sufficient to justify its recommendation.

Since the work of d'Herelle on bacteriophage there have been numerous enthusiastic articles regarding its use in staphylococcus septicemia. This enthusiasm has probably received its greatest impetus from MacNeal and Frisbee,¹² who report the use of bacteriophage in fifteen patients with seven recoveries and eight deaths. It is interesting that Lowenstein¹³ reported fifty-seven cases of staphylococcus septicemia treated by various methods with a mortality of 61 per cent. The *Journal of the American Medical Association* emphasizes that the subject of bacteriophage is still in an experimental stage.

It has been suggested that what value may have been received from the use of certain intravenous dyes was obtained by a nonspecific foreign protein action. Since most of such patients are already in a weakened even critical condition it would seem that any injection which would produce a severe reaction or shock would not be justified.

Recovery from staphylococcal infections, as in other infections, comes about as a result of the patient's own immunological defenses. Any means by which the patient's own natural defenses can be improved, or by which these defenses can be passively increased, should enhance the chance for recovery.

Vaccines in general have not proved effective. Their use although the results are usually discouraging is a step in the right immunological direction. The *Journal of the American Medical Association*¹⁴ in a recent editorial on staphylococcus toxoid, states that the titer of the circulating antitoxin fails to rise by treatment with vaccines, while treatment with toxoid usually produces an increase in antitoxin titer. For this reason, it is likely the use of staphylococcal vaccines may be completely discarded.

Repeated blood transfusions from healthy donors of from 250 to 350 cc. at intervals of every 24 to 72 hours are of undoubted value.

Their purpose is threefold: First, as a supportive measure to replace red blood cells which are constantly being destroyed by the toxin; second, the administration of natural antitoxin present in the blood of donors and, third, the addition of fresh human complement. It has been shown that the antitoxin content of the blood can now be tested and donors whose blood is possessed of high antitoxin content may be selected. Blood transfusions from immunized donors possess much to commend them. Unfortunately, by the time a vaccine is prepared and sufficient injections given to immunize an acceptable donor it is too late for such transfusions to be of service in the acute cases. For the more chronic types of infections immunotransfusions are to be recommended. The writer has had some small experience with this method. A vaccine was prepared from a staphylococcus cultured from the blood of a man who developed septicemia following a prostatectomy. A donor was immunized and after the first immunotransfusion (he had had seven previous small transfusions) his blood remained sterile. It is possible that with the toxoid and with the method of measuring the antihemolytic (antitoxin) titer of the blood available immunized donors may now be more effectively and more rapidly prepared.

The recent Council accepted staphylococcus toxoid¹⁵ has given encouraging results in many types of staphylococcal infections. The toxoid is prepared by incubating toxin with a small amount of formalin to detoxicate. It appears probable that patients may now be actively immunized by means of the toxoid, a procedure comparable with that used for active immunization against diphtheria. The procedure can only be recommended in the chronic infections.

Staphylococcus antitoxic serum has been available for clinical trial in this country and others for several years. It is not as yet Council accepted. The antitoxic serum is prepared by injecting horses first with the toxoid and later with crude toxin. Following this method horses attain a high titer of antitoxin. Since the antitoxic properties are embodied in the pseudoglobulin fraction, the serum is subjected to a fractional concentration process. There is laboratory evidence (Dolman¹⁶) to indicate that the staphylococcus antitoxin neutralizes the hemolytic, dermonecrotic, lethal, leukocidin and plasmacoagulating properties of the toxin. It also shows a high agglutination titer against staphylococcus suspensions. There is no demonstrable bactericidal action of the serum; in fact, staphylococci readily multiply in the antiserum.

The staphylococcus antiserum is given intra-

venously, intramuscularly and, when indicated, intraspinally. There is evidence that the toxemia of many cases of severe staphylococcal infections is materially lessened. The trend of opinion as regards the value of the antiserum is to be found in recent articles by some who have had opportunities to give it clinical trial. This opinion is perhaps conservatively expressed by Dolman, who has treated 104 cases fifty-four of which had staphylococcemia, as follows: "... the conclusion is reached that, when supported by adequate surgical drainage . . . , staphylococcus antitoxic serum is a specific therapeutic agent of very considerable usefulness." Although it is too early to become greatly enthusiastic over the use of the antitoxin it is to be hoped that its usefulness may be greatly extended.

COMMENT

It is apparent that no particular advance has been made in the treatment of staphylococcal infections except in the field of immunology where effective therapy is as yet limited. Evidence has been briefly presented to indicate that the dangers of many infections with the staphylococcus are derived from the *in vivo* production of an exotoxin and that recent efforts have been directed toward the neutralization of exotoxin by actively or passively increasing the antitoxin content of the blood.

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TRAUMATIC RUPTURE OF NORMAL SPLEEN—SPLENORRHAPHY—RECOVERY

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Reports of repair of traumatic rupture of the normal spleen appear infrequently. Berger¹ reviewed all cases of ruptured spleen up to 1902, a total of 275 cases. Two hundred cases were not operated on and the mortality was 92.3 per cent. Splenectomy was done in 67 cases with a mortality of 56.7 per cent. Splenorrhaphy was done on two cases with a 50 per cent mortality. "In above splenectomies 13 had complicating injuries of which 9 died. In 2 of the recovered ones the complications were very slight."

In the later literature available to me I find 182 further cases reported; all of these were treated surgically, all recovered and all except four were splenectomies. This list is of course incomplete.

Bunting² says "immediate surgical intervention with splenectomy offers practically the only hope for the patient."

It has long been conceded that no detriment to life or health is sustained by the splenectomized patient. Renfer³ says after examining fifteen patients who had been splenectomized following accidents, he found no "permanent or late detriment attributable to the loss of healthy spleen." His cases included two people, 9 and 10 years of age, respectively, at time of operation, whom he had examined after twenty-five and fourteen years.

Twyman⁴ in 1915 did splenectomy for a traumatic rupture of a malaria spleen. In a recent communication this author advised the writer his patient was in good health.

Mazel⁵ states "ruptured spleen occurs in 30 per cent of all abdominal injuries." This may be too high an estimate; however, Jackson⁶ says "that many cases of rupture of the spleen have not been reported is evidenced by the fact that literature on that subject is exceedingly incomplete."

Bonfield⁷ reported recovery in a case of traumatic rupture of the spleen with removal of the lower half in a boy of 12 years. I have seen a report of one ruptured spleen recovery treated with tamponade but have lost the reference.

Doughtie⁸ reported a successful repair of a traumatic rupture of a normal spleen in a boy of 19 years by repair and closure without drainage. Mazel⁵ reported a successful repair in a girl of 11 years, nineteen hours after injury, by suturing the laceration and reinforcing with a pack.

REPORT OF CASE

L. M. R., female, aged 10, at 5:45 p. m., May 14, 1936, while running, tripped on a metal shoe scraper and fell striking the lower abdomen and lower chest wall on steps. She walked to her bedroom and lay down stating she had "knocked her breath out." At the time of the accident her stomach was empty. Two hours later she drank 3 or 4 ounces of milk which were retained without nausea. About three and one half hours after the accident she was seen at home lying on her back, thighs flexed on abdomen, complaining of shortness of breath and pain in left shoulder and lower left abdominal quadrant. The whole abdominal wall was rigid. The skin was dry and warm. Pulse 100, temperature 98 F., respiration 20 but somewhat "jerky" in character. She was taken to the hospital.

Examination.—Roentgen ray film of abdomen failed to show abnormal gas shadows. The blood examination follows: Coag. time 3 min. 10 sec., Hb. 13.7 gms. 81.1 per cent, color index 1.0, erythrocytes 4,010,000; leukocytes 34,000, polymorphonuclear neutrophils 84, small lymphocytes 12, large lymphocytes 4. Voided urine was clear. Sp. gr. 1030, reaction 6.3 pH, albumin, faint trace, sugar, acetone, diacetic acid and bile were all negative. There were no casts or erythrocytes, occasional leukocytes. Total solids 7.8 per cent. A diagnosis of ruptured abdominal viscus was made and exploration advised.

At 11:15 p. m., five and one-half hours after the injury, under ether anesthesia, the abdomen was opened by a left rectus incision. The left posterior abdomen contained 500 cc. clotted and fluid blood distributed from the diaphragm to the pelvis. Hurried search for its origin revealed a fracture across the anterior surface of the spleen, extending at right angles from the hilus to the periphery and one half to three fourths through the substance of the organ. The wound was bleeding very freely.

The laceration was repaired with No. 2 plain catgut by a continuous suture starting at the hilus, continuing to the distal extremity of the laceration, the suture tied and carried back to the hilus, with alternating deep and superficial sutures. Hemostasis was by this means established. Omentum was placed against the repair, held in place with a gauze uterine pack the end of which was brought through the abdominal wall by means of a stab wound under the left twelfth rib and the incision closed layer by layer. The gauze pack was removed in forty-eight hours. Transfusion was not done.

The blood examination fifteen hours after operation was as follows: Erythrocytes 3,210,000, leukocytes 18,500, polymorphonuclear neutrophils 75, small lymphocytes 15, large lymphocytes 6, transitionals 2, eosinophiles 2. The patient was taken to her home on the eighth postoperative day in satisfactory convalescence which has continued except for a tendency to fecal impaction. This condition is becoming less troublesome.

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SPECIAL ARTICLE

FAKE EYE SPECIALISTS EXPOSED

NATION-WIDE RING POSING AS EYE DOCTORS FOOL
COUNTRY FOLK BY PRETENDING TO REMOVE
CANCER FROM EYES

This article is released by the Post Office Department so that the public may have a thorough knowledge of the scheme described and know how to combat it.

Post office inspectors have broken up a nation-wide organization of crooks who pose as eye specialists through the arrest of a number of its members in separate parts of the country.

It is estimated that the public has been swindled out of more than a million dollars by the crooks, some of whom are said to have made more than \$350,000 out of what is known as the Glimmer Racket.

The postal inspectors could not believe that reputable eye specialists would perform delicate eye operations except under the most sanitary conditions where there was no danger of infection. When they learned that men claiming to be specialists connected with the most renowned clinics and hospitals of our country were performing such operations in the living and dining rooms and kitchens of country homes and collecting unreasonable fees from their patients, they became skeptical and decided it was time to investigate.

But where were they to start? They found that the names used were fictitious. They were usually similar to those connected with some nationally known institution, or associated with remedies known for generations to practically all the people. It seemed at first that the swindlers had left no trace behind. But after coming to the conclusion that the alleged renowned eye specialists were in fact a band of fakers, the inspectors devised means for identifying them and bringing them to justice.

The scheme has been confined mainly to aged and infirm persons residing in rural communities. The swindlers specialize on those who are 70 or older. The ease with which they extort large sums from their victims is surpassed only by the brutality of their scheme. Often the victim is left temporarily believing he has been saved from cancer, blindness or paralysis, when he has not been benefited and has been deprived of his last dollar.

The post office inspectors found that the racket was nation-wide and that the swindlers traveled by automobile, remaining in one state but a short time. The inspectors realized that

A release from the office of the Chief Inspector, Post Office Department, Washington, D. C.

the different states unaided could not cope with the racket. Therefore they joined with the state enforcement agencies in identifying and locating the swindlers. The results so far obtained have proved the efficacy of their plans.

The swindlers pledge their victims to secrecy on the pretense that the "great" doctor would be ruined professionally and ostracized should it be made known he had performed an operation at a residence. Because of fear of violence, robbery or the possibility of having to pay additional sums to the fake doctors, their experiences often are not brought to the attention of the postal authorities or the local officers.

This method of swindling is known to the underworld as the Glimmer Racket. In the Glimmer Racket there are persons known as "finger men" who travel about the country selling eye glasses. Some of them are licensed opticians. They sell very cheap glasses for exorbitant prices. Sometimes they sell glasses worth not over \$5 for more than \$100. In one particular case a man 98 years of age was induced to pay \$100 for glasses which it was claimed would improve his sight. A few weeks later the same imposter sold the man another pair of the same cheap glasses for \$135, representing that the first ones were not strong enough for one his age. It was later shown by a reputable optician that this aged man had a cataract on each eye and that glasses could be of no benefit whatever to him. It was further established that the value of the glasses was not in excess of \$3.75.

These "finger men" are not satisfied with the enormous profits made on their cheap glasses. They furnish the names and addresses of their victims to the members of the gang known as "specialists" and receive a 20 per cent commission on any amounts the latter obtain from the victims.

Sometimes the fake eye specialists find their own victims by talking to local persons, making them believe they are looking for some elderly person in the community whose name they have but misplaced. They describe a person of just the type they want to contact. At times the "specialists" visit homes pretending they want to purchase the property, and during the conversation represent that they are "eye specialists." Before leaving they inform the occupant or his wife that there is some serious eye trouble and offer to make an examination without charge, always falsely representing that the victim is afflicted with an eye cancer, cataract or "film" and inducing him to undergo an operation for its removal. They collect a fee as large as they think the victim is able to pay.

The pseudospecialists usually work in pairs.

Sometimes one is accompanied by a woman posing as a nurse. They are neatly attired and travel in automobiles. Arriving at the home of the victim, one remains in the car. The other goes into the house, often walking in boldly and calling the victim by name, explaining that he may be surprised that he should be called by name, but it was obtained from their agent who sold glasses in the community a year or so ago.

The fake doctor who first goes into the house introduces himself under the name of some nationally or internationally known physician, surgeon or oculist, and claims to be connected with some well known optical house. He states he is merely passing through, checking up on glasses sold by their agent and replacing any unsatisfactory glasses without cost as all glasses sold by them are guaranteed. Thus an opportunity is afforded to examine the victim's glasses and eyes.

The fake doctor gets out his kit and instruments. He fits lens after lens into the testing frame and pretends that no satisfactory results are obtained. He appears to be worried over the case, and from much practice he acts the part well. He finally tells the victim he cannot make a fitting as something is unusually wrong with one eye. He informs the victim that he has an eminent eye specialist with him in his car and suggests that he be called in to make an examination.

The alleged eye specialist is called in from the door way and told to bring his kit containing his instruments. They let the victim see clearly that there is no collusion between the two. The "doctor" is dressed to play the part of a successful professional man from the big city or famous institution. The first man tells the fake doctor his troubles; how the whole matter has baffled him and asks if he will make an examination without charge. This he agrees to do.

The fake doctor then makes his examination. He says little or nothing. He shakes his head as the examination progresses, indicating the discovery of some serious trouble. He finally announces, "It is no wonder you cannot fit glasses to this eye. It is in a very bad condition. There is a 'cancerette' on it. Unless it is removed very shortly it will either go to the brain and result in death or paralysis will follow. There are only a few hospitals in the country where such cases can be safely and successfully operated on."

His confederate asks, "What would be the costs of such an operation, doctor?" The fake "specialist" then says, "The cost would range anywhere from \$2500 up to \$5000 or more, dependent upon the clinic or hospital to which the patient is taken." The confederate asks, "Is it

very dangerous and difficult to perform and is it very painful?" The fake doctor: "No, it is not at all painful. It is neither dangerous nor difficult for one who has the skill to perform it."

"Doctor, why don't you just operate here?" the confederate asks. "These people cannot afford to go to a hospital. Why couldn't you just go right ahead and perform it here and now, or couldn't you do it here?" The fake doctor replies, "Oh, yes! I could perform it here just as well as anywhere but I may not do so. It would be unethical to perform it anywhere except in my office or some clinic or hospital." The confederate: "Well, this patient might have a stroke tonight or at any time if not operated on." The fake doctor: "I'm very sorry but it would not do at all to perform it here. I'll run out to the car and get one of the leaflets showing just where this type of operation can be readily performed and the approximate charges."

The fake doctor leaves for the car. The confederate immediately says, "That is one of the best oculists in the country today. He's very wealthy and does not need money. I've known him since his boyhood. The size of his heart is not even limited to the size of his body. I know the only thing he is afraid of is that you folks might talk about the matter. If you can convince him that you'll not talk about it, I'm sure he'll do the operation for you and can save you several thousand dollars."

The fake doctor returns about this time announcing that he must have packed the "leaflets" in the luggage which he expressed back home, but says, "You can get the work done at Tulane University Clinic, New Orleans; Johns Hopkins, Baltimore; Miles Institute, Elkhart, Indiana; University of Pennsylvania Hospital, Philadelphia," etc., for certain amounts, plus the expense incident to the trip.

The confederate then says, "Doctor, these old folks cannot afford to pay such sums." The fake doctor: "If they will come to our clinic, I'll be very happy to perform the operation without cost, just as I would here, if it was not for the chance of having the fact become known."

Confederate: "Doctor, these people are truthful and honest. They would not make you a promise they would not keep. I'm sure they would be willing to show their gratitude to you by keeping the fact of the operation absolutely quiet."

By this time, if the old folks have not voluntarily assisted in urging the fake doctor to operate, the confederate turns to them for assurance and the old folks willingly agree to a pledge of secrecy. The fake doctor will then

bind them as with the sanctity of an oath, as they shake hands all around in solemn token of the agreement entered into.

The fake doctor has the patient lean back. The head dropped farther backward. An eye-dropper is inserted into a green opaque glass bottle, heavily corked, and a very few drops of the precious liquid, represented to be radium but actually some patent eye liquid, are withdrawn. After these drops are put into the eye, a blunt pair of medicated cotton-tipped medical tweezers are used to rub the medicine around in the eye as an occasional drop is added. The fake doctor will request the mate of the victim, if present, to procure some hot water.

During the few intervening moments of absence, this faker will remove from his mouth a piece of rubberoid material which he had placed therein at the time he ostensibly went to the car for the "leaflet" and spreads it over the patient's eye. He continues to stimulate the rubbing of the eye with the tweezers, and after this tissue rubber has been spread over the entire eye to the fake doctor's satisfaction, he will call any one present and point to the wonderful effect of his so-called "liquid radium" in drawing this cancerous growth to the surface, explaining it is coming out by its roots. Very shortly, he utilizes the tweezers to catch hold of the rubber, which is then slowly withdrawn from the eye.

This so-called cancerous growth is immediately thrown into a fire, or in some other manner destroyed by burning. If the credulous folks desire either to preserve it or inspect it closely, they are impressively told: "This is a most virulent poison. It is so deadly that it must be destroyed by burning. If I were to throw it into the yard and one of your chickens ate it, it would not injure or kill the chicken any more than the other filth chickens eat, but if you should later kill that particular hen, then all who ate of it would get cancer of the stomach."

In instances in which it is known that the victims are fairly well-to-do or wealthy, or in instances in which the victim is too skeptical, the confederate in making his eye tests places a lens in the frame covering one eye which will strengthen it, and another over the other eye which will impair its vision. He will then place his hand over the "bad" eye and the patient will be able to read the chart readily. When he next places his hand over the patient's "good" eye, the patient will discover that the vision of the other eye is practically gone.

After the operation, the confederate will demonstrate the success of the operation, by placing the proper type of lens over the "bad" eye as

well as over the "good" eye. When this test is made the patient finds that the chart can be read in whole or in part with the "bad" eye, and is firmly convinced of the success of the operation. He feels that even if the men have lied, his own eyes and very senses have not deceived him.

The operation complete and the victim satisfied as to its success, the fake doctor asks for a blank check and tells the victim to sign it. This formality ended the fake doctor makes a rapid computation, and states: "The 'radium' used amounts to \$857.50. I'll not charge you a penny for the operation, and we'll make the check for \$850.00 even money. I must have this in cash, as I'm catching a late night train, so I'll have to ask you to go to the bank with us and get this check cashed as I must account for the radium on my return to the hospital."

"The check is made payable to the fake doctor 'or bearer.'" The "doctor" indorses it, and has the maker do likewise. They then take the maker to the local bank. One of the conspirators remains in the car. The other follows the unsuspecting victim to the bank to observe whether he cashes it or enters into conversation with the cashier, vice president or president of the bank.

The victim returns with the cash. It is delivered to the fake doctor. The conspirators drive the victim back to his home, shake hands with all and make their departure graciously. The "finger man" is usually waiting for them somewhere along an unfrequented roadside or in a near-by town, as these "specialists" do not trust one another and cheat each other at every opportunity. If he is not there to receive his "cut" of the spoils the fake doctors may double cross him and he will not receive it at all.

If the swindlers are successful in obtaining a large amount of money for the pretended operation another visit is made to the victim in about two weeks by two different members of the ring, one claiming to be a noted eye specialist and the other a judge. These men represent that the "specialist" who performed the operation was killed in an accident, but lived long enough to make the request that an examination be made to determine whether the operation had been successful, and directed that the money paid for the operation be returned if it was not a success. The pretended judge falsely represents that he is selling the estate of the deceased doctor, and that he stands ready to make the refund if the operation failed.

An examination is then made on the pretense of determining whether the operation was successful, following which the new fake doctor announces: "I find that you have 'cancerosis' of the eye in the very worst form, and unless

something is done at once you will be paralyzed and probably lose your life. But you can be cured. A renowned German physician named Krupp invented a belt which if worn will cure it. The belt gives off radium rays and is a sure cure, as it corrects the condition of the blood."

The victim is told there are only a small number of these belts in existence as Dr. Krupp died without leaving the formula. It is claimed that the belts are in possession of a few renowned hospitals and that the "doctor's" own hospital is one of them. A child related to the "judge" is at present wearing the belt but as the child is practically cured of infantile paralysis, the belt will be available in a short time. The victim is told that he can rent the belt for a dollar a day but because of its great value, he must post a deposit for its safe return. It is understood that there will be no charge for the belt if it does not effect a cure and that the deposit will be given back when the belt is returned.

In this way victims are induced to give the fake eye specialists large amounts in the form of checks or cash as security, in the belief that the deposit will be held until the return of the belt; but the fakers cash the checks as quickly as possible and seldom deliver the belts.

In a few instances belts have been delivered, but they were found to have no curative properties and to have cost but a few dollars.

Usually the fakers fill in the checks and have the victims sign them. They leave a space after the name of the payee in which later to write the words "or bearer," so that they may more readily negotiate them.

In some cases where belts were delivered, additional sums were obtained from the victims on the ground that they lived where the police protection was not adequate and the belt might be stolen.

Post office inspectors sent out circulars describing the plan of operation of these fake eye specialists and as a result of this circularization fifteen of them have been arrested. Two have already been convicted, one being sentenced to twenty-five years imprisonment and one to five years. Others are in jail waiting trial or are out on bond.

But this does not account for all of the swindlers. There are many in the Glimmer Racket, and they may show up anywhere at any time for they operate from coast to coast.

It is especially desired to have this information brought to the attention of the aged and all those afflicted with eye ailments. The Department is confident of the active assistance of all decent citizens. Such assistance can best be rendered by bringing any and all known complaints promptly to the attention of your local peace officers and your postmaster.

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DECEMBER, 1936

EDITORIALS

ANNUAL MEETING OF THE COUNCIL

The annual meeting of the Council of the Missouri State Medical Association was held in Columbia, November 5, with thirty-nine Councilors, officers and chairmen of committees present. Dr. A. R. McComas, Surgeon, Chairman, presided.

Dr. B. W. Hays, Jackson, was elected chairman of the General Committee on Arrangements for the 1937 Annual Session to be held in Cape Girardeau. Drs. T. W. Cotton, Van Buren, and Dr. J. B. Luten, Caruthersville, were elected members of the Committee. Dr. M. H. Shelby, Cape Girardeau, was appointed chairman of the Local Committee on Arrangements. The dates of the Annual Session were left for the Executive Committee to select.

The chairman appointed the following members as the Committee on Auditing and Appropriations: Drs. T. W. Cotton, Van Buren; Spence Redman, Platte City, and E. P. Heller, Kansas City.

The Treasurer's report was presented by the Secretary in the absence of Dr. John R. Caulk, St. Louis, Treasurer. Reports were made by the Secretary and by chairmen of committees on Health and Public Instruction, Publication, Defense, Postgraduate Work, Cancer, Medical Economics, Mental Health, Public Policy, Study of Medical Practice Act, Maternal Welfare, Fractures and Auditing and Appropriations.

The Secretary's report showed an increase of thirty-four members since the 1936 Annual Session and the number of delinquent members sixty-four less than a year ago.

A substantial increase in advertising was reported by Dr. J. C. B. Davis, Willow Springs, chairman of the Committee on Publication.

The Committee on Postgraduate Work was instructed to furnish speakers on "Appendici-

tis" for societies so desiring and the McAlester Foundation to cooperate with this committee in furnishing speakers for lay groups.

The resignation of Dr. B. Kurt Stumberg, St. Charles, Councilor of the Eighth District, because of ill health, was accepted and Dr. Frank G. Mays, Washington, was appointed to fill the unexpired term.

The Council went on record as favoring a sufficient appropriation from the legislature for the University of Missouri to maintain a four-year course in medicine at Columbia as well as the building of a general hospital for indigents to supply the necessary clinical material.

A resolution requesting federal appropriation for maintaining the high standard of the Library of the Surgeon-General was adopted.

Reports were presented by twenty-five Councilors. The refresher courses on obstetrics and pediatrics were discussed with much praise by Councilors in whose districts the courses have been presented. Several other matters of a routine nature were considered and appropriate action taken.

Dr. F. A. Middlebush, President of the University of Missouri, and the Hon. Frank G. Harris, Lieutenant Governor of Missouri, were guests of the Council at lunch and delivered short addresses.

PNEUMONIA CONTROL

The death rate from pneumonia in Missouri in the years 1929 to 1931 averaged 120 cases per 100,000 of population; it was at least thirty cases per hundred thousand higher than in the neighboring states of Iowa and Kansas, and some twenty cases higher than in Illinois; Arkansas and Oklahoma, however, had about the same death rate from the disease as did Missouri. In nearly any list of the causes of death in this country pneumonia ranks third; in 1934 it was responsible for the death of 115,000 persons. Ninety-six per cent of the cases are due to the pneumococcus; one third of these are due to Type I pneumococci and one third to the heterogenous Type IV organisms.

A few months ago we discussed the pneumothorax treatment of pneumonia¹ and pointed out that on the basis of the work of Blake, Howard and Hull a properly executed pneumothorax might prove of considerable value in the cure of pneumonia. This procedure is worthy of consideration because it may be carried out simply with an easily portable apparatus in the patient's home; it is inexpensive; the danger of unpleasant reactions in experienced hands is remote. It would appear to be the one method by

1. Pneumothorax Treatment of Pneumonia, J. Missouri M. A. 33:268, 1936.

which almost the entire profession can aid in reducing the high mortality of the disease.

Appalled by the mortality rate the Massachusetts State Board of Health six years ago inaugurated a campaign to reduce the incidence of pneumonia and to insure more adequate treatment for its victims. A year ago a similar plan² was inaugurated in New York State. Through educational measures, including the exhibition of a moving picture and talks before groups of laymen the State Board of Health and its co-operating agencies seeks to make each citizen acquainted with the early manifestations of the disease to insure that he will call his physician in the preliminary stage of lung invasion. A sudden rise in temperature, a stitch in the side, an acute cough, the appearance of blood-tinged sputum may be taken as self-evident signs of the disease.

The New York State Board of Health is co-operating further in the control of the disease by the establishment of sputum typing stations at strategic points within the state. The Neufeld capsular swelling technic makes rapid typing feasible. Serum is offered without charge for the use of physicians having patients with Type I pneumonia. In the first three months of 1936 over three times as much serum was distributed by this means as was so distributed in 1934. While it is notoriously difficult to collect reports from physicians as to the results obtained with material gratuitously distributed by a state agency, such information as could be collected indicated a corrected fatality rate of only 12 per cent. In Massachusetts where this service is much better established the data shows that only 11 per cent of the serum treated Type I cases died as contrasted with a mortality rate of 25 per cent in those patients receiving no serum.

The importance of early serum administration is emphasized by the fact that of those patients receiving it before the fourth day of the disease only 8 per cent died whereas 19 per cent of those receiving it on the fourth day died. On the basis of this limited experience in two states the Metropolitan Life Insurance Company has estimated that nation-wide (gratuitous) distribution of pneumonia serum would result in the annual saving of 13,500 lives in the United States.

In view of the widespread publicity that is being accorded serum therapy in pneumonia it is reassuring to find that certain authorities in the field are not overlooking the importance of time tested aids to treatment. There is a certain reactionary group who even suggest that the whole patient instead of just his disease be

treated. Bethea³ in a short comprehensive review stresses the importance of isolation, especially in Types I and II cases, of absolute bodily rest, avoidance of the exhausting purges (although the failure to purge violently was once grounds for malpractice suits), a high carbohydrate and a low residue diet with plenty of fluids. He believes that serum therapy in those patients with Type I infection is of value. He condemns, as do most modern writers, the indiscriminate employment of digitalis, finds little use for the quinine derivatives and advises codein for the relief of pain rather than morphine because of the relative oxygen unsaturation of the blood promoted by the latter. He concludes his review in these words: "I have become more and more convinced that infinite attention to the details of general care and a policy of the employment of the least possible medication or other interference is at least worthy of further consideration."

Cole,⁴ who may really be considered the father of modern serum therapy in pneumonia and who has devoted a large part of his thirty years at the Rockefeller Institute to a study of the disease, is convinced of the value of Type I serum but believes that the efficacy of other serums is as yet unproved. For twenty-two years he and his associates have employed a mode of therapy. "From our experience," Cole writes, "Type I serum should be given as early as possible and in large amounts, and the doses should be repeated every four or five hours until definite effects are seen in the fall of temperature, decrease in pulse and respiratory rate and improvement in the other signs of intoxication. It is better to give too much than too little." Cole, like Bethea, emphasizes the importance of rest even though the patient does not appear acutely ill. In general, he agrees with the latter as to the uselessness of other medication; he is not yet ready to form an opinion as to the value of pneumothorax treatment or sodium chloride administration.

The benefits to be achieved by the state from the expenditure of funds to control pneumonia are bound to be reflected in a reduction of time lost from work, an increased preservation of useful lives and a general improvement in health. Yet, this disease seems to receive all too little attention as a part of the public health policy. Much more time and attention is devoted to typhoid fever which even in the course of its most devastating epidemic in this country killed less than half as many persons as Type I pneumonia kills during the course of a single year.

2. Cecil, R. L.: A Campaign to Reduce the Death Rate of Pneumonia in New York State, *New York State J. Med.* **35**, 1935.

3. Bethea, O. W.: Some Modern Trends in the Therapy of Pneumonia, *Inter. Med. Dig.* **28**:178, 1936.

4. Cole, R.: The Treatment of Pneumonia, *Ann. Int. Med.* **10**:1, 1936.

In the pneumonia mortality tables, Missouri's position is not an enviable one; that position is capable of improvement. In the first place, the public must be taught that simple acute upper respiratory infections are not to be lightly dismissed; if untreated they may be the forerunner of congestion of the lungs. In the second place, the profession may be alert to the proper employment of artificial pneumothorax therapy except in the case of those persons with Type I infection for whom the cost of serum will not prove prohibitive. But above all, the compelling importance of absolute rest in bed, the administration of codein for the control of pain, of proper sedatives for restlessness, the ingestion of a high carbohydrate, low residue diet with at least three quarts of fluid, are the basic principles of therapy. The newly discovered adjuvants must be relegated to their proper place in the therapeutic armamentarium.

TULAREMIA, A HAZARD OF HUNTING

Some three thousand persons die each year in this country as a result of accidental injury by firearms; of this total about one half occurs in the four months beginning with October and ending with January. Carelessness in the handling of a loaded gun, dragging it by the muzzle in particular, is a frequent cause for tragedy in the midst of the joyful abandon of the hunting season. The failure of hunters to bring trivial skin burns to the attention of the physician has resulted in death from tetanus since gunshot shells are wadded with horse hair, which is almost invariably contaminated by the bacillus of tetanus. Such accidents are unfortunate; they emphasize again the importance of giving adequate publicity to the dangers inherent in the popular sport of hunting.

Tularemia is another serious hazard of the hunting season; it is not often fatal but it usually causes from three to six months of invalidism. It is difficult, if not impossible, to estimate its incidence; the diagnosis is frequently overlooked because it is not kept in mind. True, during the hunting season, the disease is more common east of the Mississippi River than west of it; nevertheless it does occur in Missouri and since there is at all times a large volume of meat being shipped from one state to another and since those who handle the meat of rabbits are particularly likely to develop the disease, it behooves the physician to keep tularemia in mind.

Named after the bullrushes of a California county tularemia has assumed increasing importance both as an occupational disease and as a sporadic, crippling invader. Due to an easily identifiable bacillus and manifested by one of three general types of clinical course, recogni-

tion of the disease is not difficult. It should be suspected in any person who becomes suddenly ill after handling rabbits; the incubation period is short, averaging three days, although sometimes as long as nine or ten. The first manifestations are those usually associated with an acute fulminating toxemia. Many times typhoid fever is suspected because of the absence of a skin lesion. In other instances the first symptom is an acute, painful swelling of a group of lymph nodes. Again, there may be only an unusually irritating, mucopurulent conjunctivitis. The characteristic papule which quickly breaks down to form an ulcer does not appear until a day or two after the first manifestation of invasion. The ulcer is typical; it consists of a sharply circumscribed punched out area with raised edges and a dirty reddish brown necrotic base. In combination with regional adenitis it makes the diagnosis suspect. But it must be kept in mind that a skin lesion is not necessary for the existence of the disease; though open to question for some time it is now incontrovertibly proved that *Bacillus tularensis* can penetrate the unbroken skin or possibly even be inhaled from the excreta of the patient.

The physician confronted with a case of tularemia need not be unduly fearful over the possibility of contracting the disease; while laboratory workers are not uncommonly infected there are very few cases of unquestionable transmission from man to man.

The diagnosis may be confirmed in the second week of the disease by blood agglutination tests. Within the space of a few days after the first agglutination test there is a marked rise in the agglutinating titer of the blood serum; proper technic will rule out the presence of *Bacillus abortus* or *Bacillus melitensis* infection. Much of the literature consists of individual case reports; Kavanaugh,¹ who has personally observed 123 cases, presents an exhaustive clinical analysis of the features and course of the disease. Only 5 per cent of his patients died, a mortality rate in keeping with that generally observed. Treatment is largely symptomatic. Foshay² advises the use of serum from goats vaccinated with the causative organism; fourteen of fifteen patients so treated recovered, a mortality rate of 6 per cent. While this serum seems of little value in preventing death Foshay is of the opinion that it definitely shortens convalescence and relieves the acute symptoms of the disease. He attributes its efficacy to a rapid desensitization of the patient. This mode of reasoning is similar to that employed by those physician, chiefly French, who treat ty-

1. Kavanaugh, C. N.: Tularemia, *Arch. Int. Med.* **55**:35, 1935.

2. Foshay, L.: Tularemia Treated by a New Specific Antiserum, *Am. J. Med. Sc.* **187**:235, 1934.

phoid fever by the repeated injection of small doses of typhoid vaccine. While the latter has found little favor in this country further trial of Foshay's vaccine is indicated in order that its ultimate value may be determined. To date no confirmatory reports as to its efficacy have appeared.

The incidence of tularemia may be reduced by the employment of the proper preventive measures. No hunter should seek rabbits in an area recently subject to an epizootic among rabbits. A rabbit that does not run fast is probably infected; it should not be used for food. Persons engaged in preparing rabbits for market should wear gloves and take scrupulous care not to cut themselves. The causative organism is known to retain its infectivity in rabbits frozen for three weeks but not in those frozen for four weeks. Elsewhere than in Missouri tularemia may be transmitted by the bite of infected deer flies or by certain species of wood ticks; the ultimate eradication of these pests, though unlikely, is to be sought for in the effort to wipe out the disease.

DINNER IN HONOR OF DR. WILLIAM T. COUGHLIN

Dr. William T. Coughlin, St. Louis, head of the department of surgery of the St. Louis University School of Medicine, was guest of honor at a dinner given by the school on November 12. The dinner celebrated the completion by Dr. Coughlin of twenty-five years on the faculty. Dr. Coughlin received his medical training at Washington University School of Medicine and was an instructor there from 1901 to 1911. In 1911 he went to St. Louis University School of Medicine as assistant professor of surgery and was made head of the department in 1920.

Also honored at the dinner were the following who have served similar lengths of time: Dr. Carl Barck, Dr. L. C. Boisliniere, Dr. Jules M. Brady, Dr. Edward P. Buddy, Dr. C. E. Burford, Dr. John McH. Dean, Dr. William P. Glennon, Dr. William W. Graves, Dr. Alexander E. Horwitz, Dr. Joseph M. Keller, Dr. William E. Leighton, Dr. Bransford Lewis, Dr. A. P. Munsch, Dr. Louis Rassieur, Dr. Carroll Smith, Dr. Percy Swahlen, Dr. Frank J. Tainter, Dr. Ralph L. Thompson and Dr. Hillel Unterberg.

The Rev. Alphonse M. Schwitalla, dean of the school, presided, and the Very Rev. Robert S. Johnston, president of the university, read the roll of the twenty honored guests. Dr. Coughlin responded.

Dr. Loyal Davis, Chicago, head of the department of surgery of Northwestern University, spoke on "Early Contributions of the Middle West to Surgery."

A volume composed of letters of congratulations was presented to Dr. Coughlin.

Lectures and clinics were attended at the school during the day by alumni and former students. In commemoration of Dr. Coughlin a Coughlin collection of books is to be established in the University library.

NEWS NOTES

Dr. Lloyd L. Ely, formerly of Chicago, has accepted an appointment as medical director of Frederick Stearns & Company, Detroit, manufacturers of pharmaceutical products.

The Tuberculosis and Health Society of St. Louis will hold its annual meeting on December 7 at Hotel Statler, St. Louis. Dr. Iago Galdston, New York, Secretary of the New York Academy of Medicine, will be the guest speaker.

The Jackson County Medical Society will give a dinner dance on December 8 for members and friends. Announcement of officers elected for the ensuing year will be made immediately following the dinner. Entertainment features will be presented and an orchestra will furnish music for dancing.

Dr. J. F. Hardesty, St. Louis, was the principal speaker at the annual meeting of the St. Louis Society for the Blind on November 23. His subject was "Prevention of Blindness and Conservation of Vision." Entertainment features of music and nonscientific presentations made up the remainder of the program.

A pilgrimage to the grave of William Beaumont, Bellefontaine Cemetery, St. Louis, was made by a committee from the St. Louis Medical Society on the anniversary of Beaumont's birth, November 21. Dr. Robert E. Schlueter, St. Louis, was chairman of the committee. Dr. Ross A. Woolsey, St. Louis, President of the Missouri State Medical Association, placed a wreath on the grave for the Association.

Dr. Paul H. Stevenson, formerly of St. Louis and a graduate of the Washington University School of Medicine, now head of the department of anatomy and anthropology at the Union Medical College at Peiping, China, was given the order of the white cravat by the Nanking Administration on November 10. Dr. Stevenson embalmed the body of the late Sun Yat Sen when the "father of the Chinese republic" died

in 1925 and at the observance of Sun Yat Sen's seventieth birthday Dr. Stevenson was decorated by the government. Dr. Stevenson went to China soon after his graduation in medicine. He is expected in St. Louis on an extended furlough sometime in 1937.

The St. Louis Pediatrics Society had as its guest at a dinner November 6 Dr. Ira S. Wile, New York, who was in St. Louis as the chief speaker during the Social Hygiene Week sponsored by the Missouri Social Hygiene Association.

The Section of Junior Members of the St. Louis Medical Society held its first meeting at the St. Louis Medical Society Building on October 8. The following officers were elected: Chairman, Dr. Roy L. Kile; vice chairman, Dr. James W. Bagby; secretary, Dr. Henry C. Allen; treasurer, Dr. Wendell G. Scott, and parliamentarian, Dr. Leland E. Hosto. A constitution and by-laws was adopted. The section will meet once a month.

Dr. Rock Sleyster, Wauwatosa, Wisconsin, was honored by a testimonial dinner given by the Medical Society of Milwaukee County at Milwaukee on November 14. Dr. Sleyster is chairman of the Board of Trustees of the American Medical Association, and treasurer and past president of the State Medical Society of Wisconsin. Friends of Dr. Sleyster throughout the country attended the dinner. A volume made of letters and messages of friendship and esteem was presented to Dr. Sleyster.

The Frisco System Medical Association held its thirty-fifth annual meeting at Springfield, Missouri, October 26 and 27 with headquarters at the Kentwood Arms Hotel. Dr. Robert Vinyard, Springfield, was president at the 1936 session and Dr. F. M. Fessenden, Springfield, was secretary. Missouri physicians who appeared on the program were Dr. C. B. Francisco, Kansas City, "Unusual Fractures of the Ankle Joint"; Dr. Fred W. Bailey, St. Louis, "The Menace of Delay in Gallbladder Disease"; Dr. C. E. Burford, St. Louis, "Urinary Lithiasis"; Dr. R. J. Payne, St. Louis, "Some of the Problems of Esophagoscopy"; Dr. C. K. Higgins, St. Louis, "Cardiovascular Renal Conditions"; Dr. Martin Engman, Jr., St. Louis, "Cancer of the Skin"; Dr. Thomas G. Orr, Kansas City, "Use and Abuse of Intravenous Therapy in Surgery," and Dr. Alexander Johnston, Grandin, "Clinical Excerpts and Concepts."

The Trinity Lutheran Hospital, Kansas City, Missouri, observed the thirtieth anniversary of its founding during the week of October 19. Features of the week were a dinner to the board of directors and medical staff; a luncheon to Lutheran pastors of the Kansas conference; a dinner at the First Lutheran Church and a public anniversary program. The hospital admitted its first patient on October 29, 1906. Two hundred twenty-five patients were hospitalized during the first year. During the last ten years 25,000 patients have been admitted to the hospital which now is equipped to care for 125 patients. Of the original medical staff the following are still active: Drs. Frank J. Iuen, Wm. C. Iuen, Hal Foster, M. A. Hanna, Carl A. Jackson and T. S. Blakesley.

The Cancer Committee of the Missouri State Medical Association held its annual fall meeting on November 4 at Fulton. The members were guests of Dr. and Mrs. T. S. Lapp at the State Hospital for lunch.

Plans for a comprehensive cancer program for the state were outlined. Dr. D. A. Robnett, Columbia, and Dr. Earl C. Padgett, Kansas City, reported on the increased interest in the cancer control program in their respective territories among both the laity and the profession. Dr. Robnett proposed a plan to make available to sixty thousand farm women in Missouri cancer educational material through the Home Economics Extension Work of the College of Agriculture of the University of Missouri.

Mr. W. Ed. Jameson, President of the State Eleemosynary Board, explained the construction work being done at the Fulton hospital. Many of the old wards are being rehabilitated and an entire new wing and new kitchen are being built. Work on the new psychiatric clinic building is progressing rapidly. A pent house on the top floor of the clinic building will be devoted to the care of indigent cancer patients. The pent house will contain about thirty-two beds and provided with modern equipment of all kinds including a sufficient quantity of radium and a deep roentgen ray machine. The hospital will probably be completed in May or June of next year. In the meantime the personnel of the ambulatory clinic at State Hospital No. 1 is being trained in the most up-to-date diagnosis and treatment of cancer. The clinic has been in operation for three years and has grown to such proportions that it is now impossible to handle all the patients.

Dr. T. S. Lapp, Fulton, in charge of the Tumor Clinic, spent several months this last summer studying methods and operation of the State Cancer Institute, Buffalo, New York,

where as many as eighty new cases are seen each day.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Abbott Laboratories

Sodium Phenobarbital 1½ grains tablets

Ampules Phenobarbital Sodium, 2 grains
Calco Chemical Co., Inc.

Tetrachlorethylene—Calco

Tetrachlorethylene—Calco, 1 cc.

Eli Lilly & Co.

Parathyroid Extract—Lilly, 1 cc. ampule

Hixson Laboratories, Inc.

Diphtheria Toxoid—Alum Precipitated (Refined)

International Vitamin Corporation

I. V. C. Halibut Liver Oil Plain

I. V. C. Halibut Liver Oil, Plain

Capsules I. V. C. Halibut Liver Oil, Plain,
3 minims

I. V. C. Halibut Liver Oil Fortified with
Natural Vitamin D

Capsules I. V. C. Halibut Oil with Vitamin D
Concentrate in Neutral Oil, 3 minims

Lederle Laboratories, Inc.

Pollen Antigen—Lederle, Mixed Grasses

Concentrated Pollen Antigen—Lederle,
Mixed Grasses

Scarlet Fever Streptococcus Immunizing
Toxin—Lederle, one 2 cc. vial containing
80,000 to 100,000 skin test doses

McNeil Laboratories, Inc.

McNeil's Emulsion of Castor Oil

Ohio Chemical & Manufacturing Co.

Ohio Carbon Tetrachloride Compound

Sharp & Dohme, Inc.

Wax Ampoules Silver Nitrate Solution 1 per
cent

Diphtheria Antitoxin, Bovine—Mulford

E. R. Squibb & Sons

Thromboplastin Local—Squibb, Dental
Package, six 4 cc. vials

United States Standard Products Co.

Ampuls Solution Caffeine Sodio—Benzoate
7½ grains, 2 cc.

Wallace & Tiernan Products, Inc.

Azochloramid Solution in Triacetin 1:125

William Saphir and Morris L. Parker, Chicago (Journal A. M. A., Oct. 17, 1936), state that adrenal virilism is the clinical manifestation of hyperactivity of the adrenal cortex gland. In a case of adrenal virilism the adrenals appeared to be normal, but aberrant adrenal cortex tissue was found within the ovary. Increased function of adrenal cortex seems associated with increased excretion of estrogenic substance.

MISCELLANY

MEDICAL ECONOMICS

Resettlement Administration Activities

CARL F. VOHS, M.D.

CHAIRMAN, COMMITTEE ON MEDICAL ECONOMICS
MISSOURI STATE MEDICAL ASSOCIATION

To all who attended the conference of Secretaries and Editors in Chicago recently, the words of Dr. Thomas Parran, Surgeon General, United States Public Health Service, that he opposed compulsory health insurance were indeed very pleasing. On the other hand, when one peruses the rules governing the activities of the Federal Resettlement Administration in North Dakota, South Dakota, Iowa, Indiana and its proposed activities in Missouri, one cannot be so secure in the feeling that all is well. Ostensibly the Resettlement Administration wishes to provide emergency medical care to its clients. On investigation and by the admission of Resettlement Administration employes in Missouri there are only about 10 per cent of the families on this relief program.

While representatives of the Resettlement Administration aver that only clients of the administration will be accepted as members, article VI of the articles of incorporation in South Dakota provides:

Under the terms and conditions prescribed in its By-Laws, this Corporation shall admit as new members only such persons as are farm owners, farm tenants, share croppers, farm laborers, or persons who when last employed, obtained a major portion of their livelihood from agricultural, horticultural, viticultural, forestry, dairy, livestock, poultry, bee or farm operation.

There is no mention in article VI of relief clients. Under its embracive phraseology, any person, irrespective of his financial status, and wherever he may reside, may be accepted as a member if he can otherwise qualify by showing any of the specified relationships to the farming industry. While the by-laws that have been drafted limit membership in the corporation, for the immediate present, to clients of the Resettlement Administration, they also provide that as soon as the Resettlement Administration or any successor federal agency ceases to be "actively engaged in rehabilitation or relief activities in the State of North Dakota" membership will be restricted only by the broad language used in the articles of incorporation.

The objects and purposes of the corporation must be determined by the articles of incorporation that have been filed, article II of which provides, in part:

The nature of the business of the Corporation and the objects and purposes for which, or for any of which, this Corporation is formed are:

(a) To associate its members together for their mutual benefit and to further the rehabilitation of said members, and to that end to engage in any activity involving or relating to the obtaining for its members of medical and/or dental treatment and services, and any surgery, nursing or hospitalization incident, necessary or convenient thereto.

(b) . . . and to make provision for the payment of, and to pay bills rendered to its members by physicians and dentists duly licensed to practice medicine or dentistry in the State of North Dakota, or by other individuals or corporations rendering services to or supplying property to its members, such provision for payment and/or payment (sic) to be made upon the terms and conditions set forth in the By-Laws. . . .

The comprehensiveness of the foregoing article is apparent. By virtue of it, the corporation is authorized to engage in any cooperative enterprise that will promote the mutual benefit of members. Physicians as such, may be affected, if at all, only indirectly by a general farmers' cooperative movement but when, as

here, the movement contemplates the supplying of medical care to members, the medical profession cannot ignore the possibilities.

While the present plan seems to contemplate that private practitioners of medicine will provide emergency medical care to relief clients, under an agreed fee schedule, the language used in article II was, no doubt, deliberately chosen by the proponents of the movement. This language clearly indicates the possibility that the corporation itself may eventually provide the facilities for the supplying of that care. If such a possibility is not in contemplation then article II is, to say the least, unfortunately phrased.

Neither the articles of incorporation nor the by-laws accord to relief clients any rights with respect to selecting their physician. The certificate of membership does purport to permit clients to choose their physician but the absence of any guaranty to that effect in the articles of incorporation or in the by-laws may not be accidental.

Even though members of the medical profession find it possible to cooperate, for the present, in rendering emergency medical care to resettlement clients, there is no assurance that they will be remunerated. The by-laws provide in elaborate detail for the submission and verification of physicians' vouchers and then conclude by reserving to the corporation the right to discharge all its obligations to physicians by refunding to the member his membership fee, if any, and any other sums, with exceptions, the member may have paid the corporation during the current fiscal year. The corporation may effect this discharge of responsibility in the event members' demands upon the corporation exceed its capacity to make payments to physicians, dentists and other persons for medical care. A physician, therefore, who fulfills to the letter his obligations may receive in payment his own vouchers marked "N. F." (no funds).

This plan of the Resettlement Administration is charged with dangerous potentialities. Great caution must be exercised by physicians in establishing any relationships with it. Measures that may be used for emergency purposes should be clearly defined as emergency measures.

That the medical profession has a definite duty in the care of the indigent cannot be denied. The Medical Economic Committee of the State Medical Association feels that all prepayment plans thus far proposed by the Resettlement Administration in Missouri are unethical and are in their final analysis dangerous to the public. Through the proposed establishment of the Medical Economic Administration of Missouri all the controversial points in the medical care of the people can be definitely answered. Through the state wide development of postpayment plans for medical and dental bills and by the care of the low income and indigent groups through the Central Admitting Bureau, which is comparable to the Filter System of Michigan, we are giving to the people of Missouri a safe and ethical plan for complete medical care.

To accomplish this we must develop alertness and cooperation in the profession in Missouri. There is every evidence that we have such an awakened profession in Missouri which will do its share to preserve the high ideals of medicine.

SYPHILIS

The Missouri Social Hygiene Association is preparing a series of articles on various phases of syphilis, three of which articles have appeared in the *Weekly Bulletin* of the St. Louis Medical Society and are here reprinted that the members throughout the state may have the opportunity of reading them.

The Syphilis Problem and the Doctor

Syphilis, because of its ravaging effects upon the individual, the family and the community, constitutes the greatest public health menace of today.

This fact was recognized by the United States Public Health Service during the war, its significance has been looming large in the minds of public health officials; but its implications are just beginning to take hold of the medical profession and the laity with enough vigor to demand that action be taken to solve the problem.

It can be solved. The scientific weapons for the conquest of syphilis are at hand and, with their widespread use, its eradication as an endemic pestilence can be achieved. There is no other disease about which medical knowledge is so complete as it is in regard to syphilis. We are not dealing with an undiscovered virus as in some of the most prevalent contagious diseases, but the spirochete is known and fortunately is very short-lived. There is no intermediary host to complicate the situation. The darkfield, serological and spinal fluid tests give abundant diagnostic aid. By early and prompt use of arsphenamines the patient can soon be rendered noninfectious, which greatly simplifies the public health and social aspects of the disease. So-called congenital or prenatal syphilis can be absolutely prevented by the early and energetic treatment of the pregnant woman. Syphilis can be eradicated.

But knowledge itself is not enough for in spite of all this scientific information syphilis still ranks as the most prevalent of all serious communicable diseases except measles. It ranks as one of the leading causes of death. A combination of two factors must be added to the situation for a successful result, physicians who will treat the infection on the same basis as other infections with a thorough alertness to its public health aspects and an enlightened public which will accept and demand adequate treatment.

A growing eagerness for free scientific discussion is evinced from several quarters—editorials in the *Journal* of the American Medical Association for April 18, 1935, and September 5, 1936, and an excellent article on "Why Don't We Stamp Out Syphilis?" by Dr. Parran, Surgeon General of the United States Public Health Service, in the *Readers' Digest* for July, condensed from the *Survey Graphic*. Two large New York newspapers have recently thrown their influence into fighting the disease through a series of feature articles and editorials, and as one picks up one's recent journals from various large drug houses the emphasis upon different aspects of the syphilis problem is noticeable at a glance.

But, however earnestly groups or organizations or health departments may try to cope with the problem, the fact remains that the most important point of attack is through the doctor—and not primarily the specialist but the general practitioner. He occupies the strategic spot in the whole campaign.

Since the subject is so timely and the literature on it so voluminous, a digest of various articles to present the salient points in the diagnosis, treatment and public health aspects of syphilis will be printed from time to time. It is hoped that at the end of the year the essential facts will have been covered and that these pages, if assembled, will constitute a concise monograph on the subject which should be of real value to the busy doctor.

The Diagnosis of Primary Syphilis

It is well to begin with the statement, "To fail to secure for a patient a darkfield examination of a genital or other suspicious lesion is equivalent to malpractice; a blood test is no substitute." (Stokes.)

Much has been written in textbooks on the configuration, edge and general appearance of the primary lesion. Before the advent of the darkfield examination it was necessary to build up a picture of a "typical sore." It is now known from experience that reliance upon one's ability to make a diagnosis in this way is a delusion and the truest thing that can be said about primary lesions is that "they are atypical." No amount of skill in inspection and palpation can make the diagnosis.

Formerly the most important differential diagnosis was from soft chancre, but soft chancre has become a great rarity. Differential diagnosis between herpes and syphilis was based upon the fact that hard chancre was supposed to be a single lesion, but this is frequently not the case. It is a great mistake to expect aid from the Wassermann or other serological tests in making a diagnosis of primary syphilis for the test is usually negative for the first three weeks after the appearance of the chancre.

Adenitis also is only an adjunct in diagnosis. However, marked swelling of the glands in the neck or under the jaw, coming on rapidly, in the presence of a sore on the lip should arouse suspicion at once and lead to a darkfield examination.

A very important lesion which is frequently overlooked is chancre of the cervix. From a report of findings in the Venereal Disease Clinic of St. Louis (Morrison), the conclusion was that primary chancre of the cervix, if looked for, is likely to show an incidence of 14 to 18 per cent of all infectious syphilitic lesions in the female, and that the darkfield examination is the most useful diagnostic procedure.

The general practitioner sees most of the primary lesions. He is the most important person in an anti-syphilitic program, and every hour counts in diagnosis at this stage as far as cure of the patient is concerned. It is safe to say that tens of thousands of young men unknowingly throw away the chance of being cured by listening to the friend or the druggist or even the doctor who gives a powder to "dry it up" or something to "burn it off."

Repeated examinations are necessary especially if the sore has partially healed. If there has been treatment before the patient presents himself, it may be necessary to apply hot saline packs to the lesion for three or four days to make it possible to get a satisfactory smear.

Several states are supplying capillary tubes which physicians may send to their respective health departments for diagnosis. Such service is not supplied in Missouri and the St. Louis doctor must, therefore, send his patient to a private laboratory, a hospital laboratory or the Health Division Laboratory. The patient sent to the Health Division Laboratory, Room 33, Municipal Courts Building, does not have to pass through the clinic. At present this service is not being utilized—only ten patients having been referred by physicians during the past year for darkfield diagnosis. This shows clearly that the physician either does not appreciate the importance of the examination or is not aware of the availability of this service.

The objection may be raised that the darkfield examination, except in the case of the indigent, puts an added burden upon the patient, but this is negligible even in dollars and cents compared with the expense of additional months and years of treatment due to wrong or delayed diagnosis. It is the duty of the physician to insist upon this service. In the domain of primary syphilis, "diagnosis" and "darkfield" are synonymous.

The Diagnosis of Secondary Syphilis

There is no sharp line of demarcation between primary and secondary syphilis. Long before the chancre appears, in fact within forty-eight hours after infection, spirochetes have entered the blood stream. Slowly but surely during this period, and following the development of the chancre, enormous numbers of spirochetes are accumulating in the blood and are being carried to every tissue in the body. During this period some measure of defense is being elaborated but the overwhelming numbers in the course of several weeks finally result in the appearance of the secondary eruption. There is no definite transition from the primary to the secondary stage.

The patient may have premonitions of trouble in the form of headaches, loss of weight and a general feeling of malaise which cause him no particular concern until the skin eruption occurs. The "breaking out" is the sign which he has associated with syphilis and which usually sends him to his family doctor. Since there is an absence of constitutional symptoms in at least 60 per cent of cases, the physician as well as the patient must cease to think of secondary syphilis in terms of eruption alone.

In pre-Wassermann days, the diagnosis rested almost entirely upon a differentiation between the syphilides and other eruptions, and it should be remembered that the art of diagnosing the syphilitic eruption is still of paramount importance. The serological and darkfield responses are of great significance only as confirmatory tests. Diagnosis of the skin lesion calls upon all of one's knowledge of dermatology. It is the inconspicuous syphilides which are difficult to see under ordinary lighting conditions that constitute 86 per cent of skin eruptions, while the more obvious one frequently pictured make up only about 14 per cent. A typical eruption of lichen planus and pityriasis rosea will furnish the chief possibilities of error.

Long observation has shown that a cutaneous eruption, of general character, developing in conjunction with the evolution of a suggestive genital lesion, is syphilis if the Wassermann, at first negative, becomes positive during the development of the eruption and remains so without treatment. Wassermann and Kahn reactions, for all practical purposes are 100 per cent positive in the eruptive stage of secondary syphilis. The occasional nonspecific positive serological test that is said to occur in leprosy, malaria and other febrile states can obviously be detected.

The darkfield may be of considerable value in diagnosis of secondary syphilis in cases of hidden or undiscovered chancre, mucous patches and condylomata. But such diagnosis should be made with proper precautions and only by an expert.

The following table of Stokes sums up the situation admirably, in the detection of secondary syphilis:

- (1) Properly follow up all doubtful genital lesions.
- (2) Strip the patient for examination; see everything in good light.
- (3) Expect symptoms in women, signs in men.
- (4) Trust the blood Wassermann reaction, but don't call everything syphilis in the patient whose blood Wassermann reaction is positive.
- (5) Use the darkfield carefully if there are available lesions.
- (6) Accept the repeatedly negative blood Wassermann reaction as eliminating all but 1 per cent or less of eruptive secondary syphilis.
- (7) Be a more suspiciously minded gynecologist or otolaryngologist. Use the blood Wassermann routinely.

(8) Know the clinical characteristics of secondary syphilitic lesions.

(9) Take more blood Wassermann tests on young adults with headaches, persistent sore throats, "rheumatism," and pseudotuberculous symptoms.

(10) Keep early neurosyphilis always in mind.

OBITUARY

WILLIAM O. POOL, M.D.

Dr. William O. Pool, Stoutland, a graduate of Beaumont Hospital Medical College, 1898, died August 18, 1936, taking his own life after three years of impaired health which had taken him from his practice. He was 65 years old.

Dr. Pool had practiced in Camden and Laclede counties for almost forty years beginning his practice there soon after completing his medical studies. He had a large practice and was liked and esteemed by his patients and colleagues. In November, 1933, he was compelled by ill health to retire from his work.

He is survived by his widow, Mrs. May Bradshaw Pool.

FORREST A. HARRISON, M.D.

Dr. Forrest A. Harrison, Springfield, a graduate of the Washington University Medical School, 1924, died April 13, 1936, of pneumonia, aged 40 years.

Dr. Harrison was born March 18, 1896, at Norris, Henry County, Missouri. He attended Warrensburg Teachers College, received his A.B. degree from the University of Missouri in 1924 and his M.D. degree at Washington University School of Medicine. He interned at the Kansas City General Hospital for one year and began his practice at Ardmore, Oklahoma, in 1925, remaining there for five years. He spent one year at the Massachusetts General Hospital specializing in pediatrics.

He moved to Springfield in June, 1932, opening an office in the Medical Arts Building and limiting his practice to the diseases of children. The doctor had established a large practice and had made many friends among the laity and was held in high esteem by his conferees.

Dr. Harrison was a fellow of the American Medical Association, a member of the Greene County Medical Society and the Missouri State Medical Association and had been voted to membership in the American Academy of Pediatrics.

He is survived by his widow and one son and to them the Society extends sympathy and requests that a copy of this obituary be furnished them and a copy be sent to the STATE JOURNAL.

W. P. PATTERSON,
W. R. BEATIE,
Committee.

Books for Leisure Moments

"Medicine is a branch of the natural sciences and in both theory and practice is dependent upon other natural sciences." This is the text around which is woven George W. Jacoby's "Physician, Pastor and Patient" (Paul B. Hoeber, Inc., New York). And on this text he writes nearly four hundred pages of extremely fascinating, unusually informative and thoroughly thought provoking material. Jacoby's subject is in no sense a new one. Only recently "The Art of Ministering to the Sick" (The Macmillan Co., New

York) by Cabot and Dick was reviewed in this column. But Jacoby goes further than these authors in his attempt to delineate the intimate relationship between medicine and religion. The medicine man of the savage was really a priest, by training, inheritance and inclination an adept at driving evil spirits from the body of the sick. Through the ages there has been a gradual separation of the priest from the physician. Yet in the mind of the patient this separation may be assumed not to exist. The extent of this association varies in different religions but so deeply ingrained in the patient is the attitude of his church that full allowance for this factor must be made by the physician who would heal disease.

After a careful survey of the problems confronting the physician and the influence of religion on the health attitudes of the patient, Jacoby goes on to integrate the medical problems which must be met with the abiding religious faith of the patient. Contraception and birth control, suicide, divorce, criminality, sterilization, sex problems, mental unfortunates, euthanasia, vivisection, even professional secrecy, all these problems which confront the practicing or would-be physician are skillfully exposed by Jacoby's facile pen. His style is direct, crisp, and he writes in the manner of one who speaks with authority.

The question of professional secrecy is always of interest to physicians. To tell may involve a suit for damages; not to tell may result in much suffering and the dissemination of disease which it is the physician's sworn duty to prevent. Jacoby compares the obligation of the physician with that of the priest. The latter is restrained by the tenets of the church; this restraint inaugurated a system of mental therapeutics often called mental purging. The physician who learns of an intended crime, should his efforts to prevent the crime fail, is not restrained as is the priest from notifying the civil authorities. The necessity of quarantine to prevent the spread of contagious disease imposes upon the physician a proper legal obligation to notify the regular constituted authorities. Yet, in the case of venereal disease the general requirement to report its presence would drive the infected public away from the general practitioner and into the hands of quacks and charlatans; hence the obligation of the physician to insist upon adequate treatment becomes doubled. Even in the case of an impending marriage between a syphilitic man and an innocent girl, even one whom the physician brought into the world and has treated since, no word of his is allowable to interfere with the impending nuptials; "The awful suffering to which she is doomed seals his lips." On the other hand, the physician may meet this crucial problem by pressing for adequate legislation in the several states which will make a certificate of health imperative for marriage. Yet, Jacoby adds to this thorough discussion, "In my opinion the obligation to professional secrecy ceases when, through the protection of a guilty man or woman, misery and distress would be brought upon innocent persons."

There is need for the physician and the clergyman to join hands in meeting the problems of every day life. Such a union can do much to spread a sound knowledge of hygiene in all its phases. Through better training for marriage, through the development of sounder family life, through health education, disease and suffering may be mitigated. The founding of Body and Soul Clinics similar to that in New York where physicians, clergymen, psychiatrists and social workers minister to the mental, spiritual and social needs of the patient, may be counted upon to lessen disease and suffering and increase the joy of life.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1936

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 19, 1935.

Montgomery County Medical Society, January 7, 1936.

Ste. Genevieve County Medical Society, January 8, 1936.

Camden County Medical Society, January 9, 1936.

Dent County Medical Society, January 13, 1936.

Perry County Medical Society, January 17, 1936.

Webster County Medical Society, February 4, 1936.

Moniteau County Medical Society, February 29, 1936.

Benton County Medical Society, April 6, 1936.

Phelps-Crawford County Medical Society, April 6, 1936.

Jefferson County Medical Society, April 20, 1936.

ADAIR-SCHUYLER-KNOX-SULLIVAN COUNTY MEDICAL SOCIETY

The Adair-Schuyler-Knox-Sullivan County Medical Society met at the Stickler Hospital, Kirksville, as guests of the hospital staff on November 5. After a dinner the scientific session was called to order.

Dr. George F. Sneed, Kirksville, presented a discussion on "Tularemia," including laboratory reports on blood from two cases.

Dr. E. V. Davis, Kirksville, spoke on "Undulant Fever" and included a discussion as to compensation liability of packing houses.

Dr. H. L. Shelton, Kirksville, discussed "Gonorrhea and Modern Methods of Treatment." All papers were discussed by the members present.

Osteopaths claiming medical standing was discussed and the president, Dr. Ida M. Nulton, Lancaster, appointed a committee of four, one member from each county, to draw up resolutions to be submitted to the Missouri State Medical Association.

Those present were Drs. Henry E. Gerwig, Downing; Ida M. Nulton and J. H. Keller, Lancaster; P. B. Hart, Humansville; W. W. Herington, Green City; E. W. Hickson, Milan; F. E. Luman, Edina; H. T. Garrison and J. S. Gashwiler, Novinger; G. F. Sneed, J. J. Wimp, A. B. Cramb, George E. Grim, Spencer L. Freeman, E. V. Davis, H. L. Shelton and R. O. Stickler, Kirksville.

J. S. GASHWILER, M.D., Secretary.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society met October 7 with Dr. J. T. Stamey, vice president, presiding.

An editorial on "Wild Life Conservation Plan of Missouri" from the STATE JOURNAL was presented by Dr. Paul Forgrave.

The following letters were read and turned over to the appropriate committees: (1) General Accident, Fire and Life Assurance Corporation inquiring as to a list of charges made insurance companies passed by the Society; (2) inquiries from Des Moines Academy of Medicine and Polk County Medical Society concerning a medical plan working in St. Joseph; (3) a letter concerning the organization of a physicians' and dentists' credit bureau in St. Joseph, and (4) a letter from Dr. K. Winfield Ney with reference to physicians obtaining credit in their income tax returns for charity work they do.

Dr. T. H. Brown's application for reciprocity to practice in Kentucky, which required a vote of the Society recommending Dr. Brown as a reputable physician, was presented and passed unanimously.

A hobby horse made by Sterling Ward of South St. Joseph was presented to the Society. Mr. Ward wished the Society's approval of the toy as an exerciser for children. Although the Society felt that it was a well built serviceable toy, as a matter of policy, it was not approved.

The application of Dr. Maxwell Day for active membership was approved unanimously.

The application for provisional membership of Dr. J. S. Ergas was referred back to the Board of Censors.

Dr. H. J. Ravold, St. Joseph, presented a paper on "Osteogenic Sarcoma" which was both complete and well presented. The cases presented were interesting from the standpoint of history, prognosis and the results of radiotherapy. The paper was well received and exhaustively discussed by Drs. W. E. B. Hall, Paul Forgrave, Wm. J. Hunt, A. B. McGlothlan, H. K. Wallace and Jacob Kulowski.

O. EARL WHITSELL, M.D., Secretary.

DALLAS-HICKORY-POLK COUNTY MEDICAL SOCIETY

The Dallas-Hickory-Polk County Medical Society met at the Christian Church, Wheatland, November 10, with the following members present: Drs. A. S. Johnston, Wheatland; J. W. Murray, Quincy; G. K. Sims and G. D. Smith, Bolivar.

The secretary read a letter from Dr. Robert P. C. Wilson of the State School at Marshall in which he offered to present a talk before the Society on "Feeble-Mindedness and Sterilization." This letter and one from Dr. J. L. Johnston, Springfield, accepting an invitation to present a paper on "The More Common Types of Dermatitis" was referred to the president for consideration for the program for the meeting in Buffalo on December 1.

Dr. G. D. Smith, Bolivar, reported a case of tumor of the brain, spongio-blastoma-multiforme. The onset was not insidious as is usually the case and the course was quite short. There had been symptoms of slight headache and some dizziness for several weeks and during the last week before operation slight ataxia, urinary incontinence, aphasia and finally coma. Because of the pupils being contracted and irregular in outline from the time Dr. Smith first saw the patient, accompanied by the ataxia and a disturbance in the speech mechanism, he suspected syphilis of the central nervous system. Serologic examination revealed a negative Wassermann. The colloidal gold reaction showed the presence of a brain tumor. Removal of the tumor was accomplished with the patient apparently in good condition but he died five days later of lobar pneumonia.

GEORGE KIRBY SIMS, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met October 20 with twelve members present. Dr. O. T. Blanke, Joplin, presided.

A motion by Dr. H. D. McGaughey that the secretary send letters to members asking their preference as to time of meeting; i. e., once a week, twice a month or once a month, was seconded and passed.

Dr. Frances E. Rosenthal, Joplin, presented a case of failing vision in a woman who had optic neuritis; had three negative Wassermanns but three stillbirths. Spinal puncture gave a cell count of 87; gold curve negative. Arsenicals would have been devastating. Potassium iodide, bismuth and hot baths were given and her vision has improved 50 per cent. The media had cleared.

Dr. G. H. Wood, Carthage, presented three cases of polioencephalitis. A girl, aged 2, started with convulsions and temperature of 106. Lumbar puncture showed eight cells; paralysis of right side. Next day cell count was ten. She died the next morning with respiratory paralysis. A child 6 years old, of a family living four miles from the first patient, was reported. A child 2½ years old had onset similar to influenza, acute upper respiratory involvement with fever followed by neurological findings. Onset was with diarrhea, vomiting and convulsions; respiration was 84 per minute.

Dr. O. T. Blanke, Joplin, presented a case of a woman, 30 years old, who had generalized abdominal distress and was menstruating. Next day was comfortable until 11 p. m. when she had severe pains requiring two hypodermic injections. Next morning she had a third hypodermic. She was taken to the hospital with polynucleosis, subnormal temperature and mass in the abdomen. Terminal ileum and ascending colon were gangrenous. Colonic resection was done. Obstruction was due to constricting band from an old uterine suspension.

"Early Diagnosis of Intestinal Obstruction" was discussed by Drs. H. D. McGaughey, S. A. Grantham, Jr., and W. S. Loveland, Joplin.

Meeting of October 27

The Society was called to order at 8 p. m. on October 27 by Dr. O. T. Blanke, Joplin, president, with eighteen members present.

Dr. George Kirby Sims, Bolivar, spoke on "Forceps, Their Uses, Abuses, Indications and Contraindications."

The paper was discussed by Drs. A. M. Gregg, E. J. McIntire, H. L. Wilbur, W. S. Loveland, J. W. Barson, S. H. Miller, L. W. Baxter and E. D. James, and closed by Dr. Sims.

J. W. HARDY, M.D., Secretary.

RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met in the Public Library Building, Moberly, at 8:30 p. m., October 13. The meeting was called to order by the vice president, Dr. T. S. Fleming, Moberly.

A letter from the Missouri Commission for the Blind was read by the secretary.

The name of Dr. Martin Hunter, Moberly, was proposed for membership in the Society.

The scientific program consisted of the showing of a four reel motion picture on "Novacain in Obstetrics." A general discussion followed.

A lunch was served at Miller's Cafe following the meeting.

The following guests and members were present: Drs. G. W. Hawkins, Salisbury; J. P. Allen, Cairo;

L. O. Nickell, F. L. McCormick, M. E. Leusley, T. S. Fleming, C. C. Smith, P. C. Davis, Martin Hunter and M. E. Kaiser, Moberly.

M. E. KAISER, M.D., Secretary.

BOOK REVIEWS

PRINCIPLES AND FOIBLES OF CANCER RESEARCH IN REGARD TO ETIOLOGY AND NATURE. By William Riehoff, Sr., M.D., F.A.C.S., Baltimore, Maryland; Waverly Press, Inc. 1936.

Here is a seemingly erudite monograph on a subject which has puzzled the master physicians and scientists of the last half century. The author's thesis is that cancer is a contagious disease spread by contact, just as are whooping cough or tuberculosis. He cites the occasional experiments in which successful transmission of a cancer or sarcoma has followed inoculation with cell free filtrates derived from cancerous growths. From the clinical point of view, the author derives the specious conclusion that because a direct contact with persons known to have cancer could be proved in 21 per cent of 1462 patients this contact resulted in the inoculation of the causative factor; furthermore, because physicians known to have cancer patients under treatment were in contact with an additional 8 per cent of these patients, the author believes that they served to transmit the causative germs or virus of the disease. It might similarly be proved that decayed teeth result from contact with persons suffering from dental caries.

B. Y. G.

NEW PATHWAYS FOR CHILDREN WITH CEREBRAL PALSY. By Gladys Gage Rogers, Director of Robin Hood's Barn: A Camp School for Children With Cerebral Palsy, and Leah C. Thomas, Director of Therapeutics at Robin Hood's Barn, etc. With photographs by Newell Green. New York: The Macmillan Company. 1935. Price \$2.50.

Despite a 25-years' interest in the spastic child, this is the first book encountered by the reviewer which he would feel safe in recommending without qualifications to physicians, nurses, physiotherapists, parents or teachers, who are entrusted with the care of such handicapped children. The authors are not physicians, but have been active in the education and training of children with cerebral palsy until they have developed a surprisingly comprehensive understanding of their needs and interests. They wisely refrain from discussions of the medical problems of etiology and pathology, except for a short chapter on the surgical aspects of cerebral birth palsies, contributed by Dr. R. N. Hatt. In establishing the Robin Hood's Barn, a camp school for children with cerebral palsy, they have demonstrated what can be done for the happiness and reeducation of such handicapped children, and from their experiences as related in this book, mothers of such children will glean many valuable suggestions. Methods of play are described, which lead to muscle training, relaxation and development of better body mechanics, all contributing to the child's physical and mental progress, and above all, his happiness and contentment. For sympathy and understanding, as well as original suggestions on the care of this type of child, this book can be recommended as an outstanding contribution on a difficult subject. It should be in the hands of any one concerned with the care of the spastic child.

T. C. H.

THE DIABETIC LIFE. Its Control by Diet and Insulin: By R. D. Lawrence, M.A., M.D., F.R.C.P. (London), Physician in Charge Diabetic Department, King's College Hospital; late Chemical Pathologist and Lecturer in Chemical Pathology, King's College Hospital. Ninth Edition. With 15 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc. 1936. Price \$3.00.

This practical manual written for patients as well as for practitioners is an excellent treatise on the management of diabetes mellitus and its complications. It is written in a clear and concise manner with a complete revision of food calories.

The author has introduced a novel simplified line-ratio method for calculating the food prescription which renders the dietary management of diabetes very simple and accurate. The book contains food tables and diet schemes in addition to diabetic recipes which make the book invaluable both to physician and patient. The reviewer highly endorses this excellent monograph.
A. C. C.

DISEASES OF THE RESPIRATORY TRACT. Clinical Lectures of the Eighth Annual Graduate Fortnight of the New York Academy of Medicine: By twenty-one contributors. Four hundred eighteen pages with fifty-six illustrations. Philadelphia and London: W. B. Saunders Company, 1936. Price \$5.50.

To the general practitioner this book should be of much interest in his treatment of diseases of the respiratory tract. It consists of a symposium of twenty-one papers that cover the entire field of diseases of the respiratory tract, from the common cold to such comparatively rare conditions as massive collapse of the lungs. These essays were prepared originally by many of the outstanding authors in the country for a series of lectures for the annual graduate fortnight of the New York Academy of Medicine.

The individual papers are concise and to the point and bring out the personal experiences of the authors, giving the latest and most approved methods of treatment. They all deal with the diagnosis and treatment of a group of diseases that account for more illness and deaths than those of any other system except the heart and blood vessels. Every bit of information is based on clinical experiences and will well reward the reader for his time in perusing these articles.

Although this volume cannot be construed to supplant or take the place of any of the better known textbooks dealing with this subject, yet it should find its place in the busy practitioner's library as a ready reference work.
A. C. H.

EVANS' RECENT ADVANCES IN PHYSIOLOGY. Fifth Edition. Revised by W. H. Newton, M.D., M.Sc. (Manch.) Senior Lecturer in Physiology, University College, London. With 120 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc. 1936. Price \$5.00.

This welcome addition to the Recent Advances Series continues the high standards of scholarship, of timely selection of topic and lucidity of expression characteristic of its four predecessors. It is to be hoped that revision of the next edition will be attempted before another lapse of six years has occurred.

The reader of the fourth edition will note with pleasure that little material which appeared there

has been retained. This fifth edition is almost entirely new. Retention of chapters I, III and V can scarcely be excused, however, on the basis of having been rewritten. Important as this material on the carotid sinus, coronary circulation and carriage of carbon dioxide in the blood is, it cannot be considered as "recent" in view of its almost identical treatment in the previous edition. This is an example of the repetition which has previously characterized this series.

Particularly welcome are the chapters on the metabolism of cardiac muscle and the oxygen supply of the fetus. Many physicians will learn with surprise on perusal of the chapter on carbonic anhydrase that the transport of carbon dioxide by the blood so long considered purely a physiochemical phenomenon is dominantly controlled by an enzyme of the erythrocytes. The discussion of the chemical transmission at nerve endings is well done and will interest the profession because of its basic importance to the action of drugs on the autonomic nervous system. The neurologist will find much to pique his interest in the recent studies on the spinal reflex. The discussion of the sex hormones might have been excluded; it is too brief to be technically usable. The kidney, micturition and defecation receive able treatment.

The book is well worth its price. It is more useful than its predecessor as supplementary reading for students of physiology. The profession will find not only that it is stimulating reading but that it will excite as well as answer many questions. A. B. H.

TRANSACTIONS OF THE AMERICAN OTOLOGICAL SOCIETY: Sixty-Eighth Annual Meeting, Royal York Hotel, Toronto, Canada. Published by the Society. New Bedford, Massachusetts: Reynolds Printing. 1935. Price \$5.00.

The Transactions of the American Otological Society is a valuable book to the otologist because of the wealth of scientific material as well as being a record of the session. The minutes of the meeting are given in a condensed form which allows the reader to quickly review the principal actions of the society. Officers and members of the society together with the minutes makes up the first thirty-five pages of the book.

Two symposia presented at the session are given in detail; namely, "The Function of the Apical Turns of the Cochlea and the Symptoms of a Lesion in this Location" and "Certain Fundamentals in Regard to Suppuration of the Petrosal Pyramid." Both subjects are dealt with by different members from various viewpoints making an unusually thorough treatment of these two subjects.

Reports of the work of the committee on otological research and the New York committee on otitic meningitis are interesting and encouraging.

Two individual papers on "A Further Contribution on Auditory Function and Vestibular Reactions in 100 Unselected Pupils at the Clarke School of the Deaf" and "Evaluation of Caloric Tests in Localization of Posterior Fossa Lesions; A Study of Verified Cases" complete the scientific portion of the book. A memorial to members who had died since the preceding session closes the volume.

The council of the society is to be commended on its selection of material to offer the otologist as a permanent record in the form of its transactions.

S. S. B.

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